IN THE CIRCUIT COURT OF THE STATE OF OREGON
FOR THE COUNTY OF MULTNOMAH

The Estate of JESSE D. WILLIAMS, Deceased, by and through MAYOLA WILLIAMS, Personal Representative, Plaintiff, vs. PHILIP MORRIS INCORPORATED, Defendant.	Vol. 17-A Circuit Court No. 9705-03957

A.M. TRANSCRIPT OF PROCEEDINGS

BE IT REMEMBERED, That the above-entitled matter came on regularly for Jury Trial and was heard before the Honorable Anna J. Brown, Judge of Department No. 7C, of the Circuit Court of the County of Multnomah, State of Oregon, commencing at 8:30 a.m., Tuesday, March 16, 1999.

* * *

Reported by Jennifer L. Wiles, CSR, RPR.

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APPEARANCES:

James Coon, Attorney at Law,
William Gaylord, Attorney at Law,
Ray Thomas, Attorney at Law,
Christopher Tauman, Attorney at Law,
appearing on behalf of the Plaintiff;

James Dumas, Attorney at Law,
Michael Harting, Attorney at Law,
Billy Randles, Attorney at Law,
Walter Cofer, Attorney at Law,
Jay Beattie, Attorney at Law,
Pat Sirridge, Attorney at Law,
appearing on behalf of the Defendant.

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(March 16, 1999)

* * *

A.M. P R O C E E D I N G S

* * *

THE COURT: Are there things we need to do on the record? Mr. Kramer, was there something you had? Or Mr. Dumas?

MR. DUMAS: Your Honor, we had previously designated some deposition testimony. It's not going to be introduced today, but it will be at some appropriate gap in the proceedings. These are the depositions of Darlene and Freda, two of the adult children of the decedent. It's, excuse me, Darlene and Glenn. I would anticipate both depositions, combined, would probably take no more than 30 or 35 minutes to read into the record.

THE COURT: Excuse me.

We can do the objections now, if you are ready?

MR. DUMAS: Sure.

MR. COON: Sounds good.

THE COURT: And get them done.

MR. KIMMERLEIN: Your Honor.

THE COURT: Thank you.

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All right. I have Darlene Williams' testimony.

Proceeding to where?

MR. COON: Our first objection would be Page 7, lines 3 through 25, discussion of a lawsuit. Relevance.

THE COURT: What's the purpose for which this is offered?

MR. DUMAS: Our copy, Your Honor, we have tabbed 1, 2 and 3 which we think thematically can be handled altogether. I think all of that testimony deals with when this witness learned of this lawsuit.

THE COURT: And what's the relevance of that?

MR. DUMAS: Mayola Williams testified on direct examination that the decision was made to retain counsel prior to the decedent's death, that the decision was made to file the lawsuit against the tobacco company as a family decision. They all got together and made the decision. The testimony of both Darlene and Glenn is that neither one of them --

THE COURT: Will you please refer to them, to the adults, by their last name?

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MR. DUMAS: Darlene Williams and Glenn Williams.

The testimony of both of those witnesses is that neither became aware of the lawsuit until just shortly before their depositions were taken.

THE COURT: Mr. Coon.

MR. COON: Well, the testimony seems to say that in fact there were discussions that they discussed with the mother, et cetera.

THE COURT: Let me read 78 and 9, please.

MR. COON: And if it is, Your Honor, we believe it is collateral.

THE COURT: On Page 8 there is a question about whether the witness was a smoker. Is that something I'm supposed to pay attention to?

MR. COON: That is the next objection.

THE COURT: What's the purpose for that?

MR. DUMAS: This is the decedent's adult child, Your Honor.

THE COURT: Is there evidence that she quit later on?

MR. DUMAS: Yes. And that she told Mr. Williams that she had quit.

THE COURT: Okay. Consistent with the

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ruling, they have evidence that the decedent knew about quitting and ways to quit, that kind of evidence can come in.

The evidence about this witness first learning of the lawsuit this summer may also be offered to present a different light on how it was the lawsuit was filed.

To the extent the defense wants to argue that the Plaintiff's contending this was a complete family decision, made before Mr. Williams died, there is some suggestion here that one of his children didn't know about it until after it was already underway.

MR. COON: Your Honor, on the question of her smoking history, there is a lot of detail in here about using patches. She quit, as I say, successfully five times. Mark Twain said that, too.

THE COURT: That is even in evidence.

MR. COON: I'll bet.

THE COURT: It is. I mean, there is. I think it was the defense witness on Friday who, in a historical presentation, quoted Mark Twain, among others, having quit successfully some number of times.

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MR. COON: In any event, there is a great deal of detail about her smoking history. The evidence concerning what she told her father was just that he knew she quit. It's not that they discussed it, that she told him all about her efforts or what it took to quit or anything like that. It would go -- that would go to his notice and that she quit.

THE COURT: Where is the material that you are directing me to?

MR. COON: The material concerning her stopping, all of the various things that she did, is on 13 to 15. 13 to 16, excuse me.

THE COURT: Where is this linked up to the communication to the father?

MR. DUMAS: Page 57, Your Honor, lines 6 through 18 or so.

THE COURT: The objection is overruled.

Next.

MR. COON: I think that is it, Your Honor. Darlene.

THE COURT: I have three tabs on pages 23.

MR. DUMAS: Correct, Your Honor.

THE COURT: 61 an 68.

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MR. DUMAS: Yes. The first one, Page 23, those are Defendant's objections to Plaintiff's counter-designations.

THE COURT: What's the objection?

MR. DUMAS: Cumulative.

THE COURT: Help me with this.

MR. COON: She was working. That she worked with her father. This is about her relationship with him.

THE COURT: Where is it otherwise covered, Mr. Dumas?

MR. DUMAS: It's covered in Mayola's, Mrs. Williams' testimony.

THE COURT: The witness is allowed to speak, herself, about those relationships.

That objection is overruled.

Next.

MR. DUMAS: The next one, Page 61, we'll withdraw that objection.

THE COURT: Okay.

MR. DUMAS: The next one, Page 68.

THE COURT: And this is in --

MR. DUMAS: I'm going to withdraw that objection, as well, your Honor.

THE COURT: Okay.

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We are moving to Glenn Williams' deposition.

MR. COON: The first objection we have is on Page 27, Your Honor. This is about the witness's personal smoking history. And the question is: How did he quit? And you'll see they have designated those lines that don't mention Jehovah's Witnesses, but the vast majority of the reasons that he did quit are about Jehovah's Witnesses. The testimony, as edited, is extremely misleading. And I don't believe -- I'm not sure where they link up this witness's smoking history with Jesse Williams.

THE COURT: Let's start there.

MR. DUMAS: Yes, Your Honor.

This is the deposition of Glenn Williams. Mr. Williams lived with the decedent at the family home from about age 33 on, or 32 or 33 onward. He lived at the home for about two years as an adult. That was, according to the testimony, the same time that he quit. He quit between the ages of 32 and 33.

So, the very strong inferences is that Jesse Williams would have been aware of his adult son quitting since his adult son was living at

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home.

THE COURT: So, you don't have a direct question to the witness, and you don't have a direct piece of evidence, that is a circumstantial link?

MR. DUMAS: I would agree with that.

MR. COON: Well, Your Honor they do have a direct question, except in this case the answer is no.

THE COURT: Where would that be?

MR. COON: 32. Probably line 4 through 12.

THE COURT: Well, let me go back to Page 26, and I see we have got a series of tabs for several pages. So why don't I read the several pages? Just a moment.

Is there something you need?

* * *

(Whereupon, the judge was handed a message from the J.A., concerning an unrelated issue to the proceedings. After which, the the proceedings continued, as follows:)

* * *

THE COURT: All right. Where was I?

MR. DUMAS: Your Honor, I think that the

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tabs 1 through 8, which go from Page 26 to 33, I believe thematically they all deal with this issue, smoking and quitting.

THE COURT: Why don't I read continuously what's designated. The blue is an objection. The pink is Plaintiff. And the yellow is the defense.

MR. COON: Right. And those page designations are only in the event that the objection is overruled.

THE COURT: Okay.

Well, you know, reading to Page 33, I conclude that the Jehovah's Witness story is a big part of this witness's motivation, and it really is unfair to have an only incomplete picture of why this witness quit.

It looks like the prime motivation was that, at the age that he quit, he became a Jehovah's Witness, and it was support from that community that caused him to have the motivation.

And to suggest that he can quit and then his father can quit, without the discussion of the powerful spiritual or religious inference is, I think, an unfair picture in isolation.

And there really isn't a need for the

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defense to do this since there is other evidence of equal magnitude.

So, I'm going to strike or sustain the objection to the evidence about Glenn Williams' smoking history.

MR. COON: Okay. Just so we have it, that is 26, then 27 --

THE COURT: It goes up through Page 33.

MR. COON: And we withdraw designations on those pages, as well.

THE COURT: Next.

MR. DUMAS: Tab 9 and 10, Your Honor, pages 47 and 53, again deal with the same issue we discussed previously regarding this witness's knowledge and understanding of the lawsuit.

THE COURT: Anything else there, Mr. Coon?

MR. COON: No. The same relevance and 403 objection.

THE COURT: The objection is overruled. That may be read.

Next.

MR. DUMAS: Tab 11, Your Honor, deals with this witness's testimony regarding his observations of Jesse Williams smoking, whether

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he enjoyed it, whether he found it relaxing, et cetera.

MR. COON: I'm sorry. I was -- on Page 53 we had an objection. Now we're talking again about the lawsuit, and it's about, you know, these lawyers were retained, et cetera. I mean we were retained. It's reemphasizing, reemphasizing, reemphasizing this, as if it is lawyers. You know, we can't talk about Shook, Hardy & Bacon, but they can talk about us.

THE COURT: Oh, now.

MR. COON: 403.

THE COURT: I don't think we are near a 403 problem here. We had quite a bit of direct testimony about Mr. Williams wanting this action, brother and daughter JoAnn Williams-Branch helping Mr. Williams find Mr. Thomas initially and then meeting also with Mr. Gaylord, and then time running out in terms of getting a video presentation by Mr. Williams before he died.

And, you know, it was a pretty strong presentation by Mrs. Williams that this was her husband's idea and the family's decision to, I think her words were, finish what he started.

Now, to the extent the defense wants to

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play with that, and I'm not suggesting that is a good idea, but to the extent they want to play with it and want to argue that it wasn't a family idea, or it was just these two women out on a crusade and drawing the rest of the family along, you know, there is danger with that strategy, but that is not to say that they can't offer the evidence of it.

You know, both sides are pointing at lawyers as being motivators of things. It is the lawyers on the defense that are framing these scientific strategies.

So, you know, I don't see this as a 403 problem in context. Okay. That is 53. Objection overruled.

Now you want to take me to?

MR. COON: I think we are on 88.

MR. DUMAS: Tab 11.

THE COURT: All right. Thank you.

And the objection here is?

MR. COON: Foundation. Speculation. Yes, my dad seemed to enjoy smoking. Why is that? Well, because he kept doing it. It's not linking to anything the jury is going to be helped on.

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THE COURT: Well, it is the son's personal perspective. That is not necessarily speculation. You can argue about its meaning and its weight, but I don't think the speculation objection is well founded.

MR. COON: Next is on Page 100, another Jesse Williams was a really strong-willed guy. We think it's cumulative.

THE COURT: Overruled.

MR. COON: That is all we have on Glenn.

THE COURT: There were two tabs.

MR. DUMAS: Correct, Your Honor.

THE COURT: On 81 and 86.

MR. DUMAS: Yes. Let me take a look at 81, please.

THE COURT: Something about --

MR. DUMAS: I'll withdraw that.

THE COURT: All right.

MR. DUMAS: The next one is Page 86, lines 1 through 17.

THE COURT: And the objection is?

MR. DUMAS: The problem we had is that there was some discussion involving the lawyers, particularly Mr. Tauman, who interposes a comment, a question, I guess, which, on line 1,

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which the witness then answered which was non-responsive to the question posed by defense counsel.

MR. COON: We don't have a problem with that. We can start with line 3.

MR. DUMAS: Okay. Yeah. Then I think -- give me two seconds, Your Honor. Yeah. I withdraw the objection, if counsel withdraws that.

THE COURT: So, the reading will begin at line 3.

MR. DUMAS: Fine. That is it, Your Honor.

THE COURT: Okay. Is there anything else for the record?

Mr. Randles.

MR. RANDLES: Your Honor, if we are not out of time, we have had the judicia notice issue --

THE COURT: Yes.

MR. RANDLES: -- pending for awhile. I think we can deal with it fairly quickly.

THE COURT: Mr. Coon, are you up to speed on that?

MR. COON: I hope so.

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THE COURT: Okay.

MR. RANDLES: Your Honor, we have offered some materials which I believe I have previously provided to the Court and Mr. Coon, asking the Court to take judicial notice of certain statutory and governmental actions.

I do agree with Mr. Coon that some of these may have been overtaken by events. So, I think maybe I can trim these down as we talk, Your Honor.

THE COURT: All right.

MR. RANDLES: For example, the first item which starts at Page 3 of our notice of intent to request judicial notice.

THE COURT: Yes.

MR. RANDLES: It discusses the states that banned the sale of cigarettes in the past. I suppose that with the testimony of Professor May on Friday, we are probably past that. So, I don't think that is a matter that the Court would have to act upon.

THE COURT: You are withdrawing 3A?

MR. RANDLES: Yes, Your Honor. I think it's been mooted.

We have several. And B starts with,

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taking this in chronological order, but B starts the FTC guidelines. There have been a number of discussions about the FTC guidelines in this case. About their rulings with respect to tar and nicotine, prohibiting it, saying it would be okay and then eventually requiring it. We think that information is useful to the jury. It's not voluminous, and it goes precisely to Philip Morris' conduct with respect to disclosure of these issues in compliance with the FTC.

MR. COON: Your Honor, we think it is cumulative and possibly confusing. But it's in evidence. Whether there is some reason the court should reemphasize it in instruction to the jury, we believe not. There's no reason to unduly emphasize that.

THE COURT: Let me just address the philosophy of this. To the extent any of these requests is relevant for the jury to know, and the jury doesn't already know it, then it may be appropriate for the Court to take judicial notice.

If it's already in, in some form, through witness testimony or an exhibit, I am concerned that my emphasizing it will put it out of context

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in a way that is not appropriate.

So, what I'm hoping you will do, Mr. Randles, is take me to the ones that haven't yet already been received in evidence in the form of a document or covered already in the form of witness testimony, and then I'll try to balance whether it's necessary for me to do it or whether it could come in through a witness anyway.

And then in the context of the ultimate instructions to the jury, it may be appropriate to have a generic statement that in the form of, you know, law is law, and you may infer from it because there are legal standards.

But the jury is going to be told regarding, for example, section 402A and the law of the State of Oregon.

So, we might be able to craft an instruction that addresses various provisions of law, law in a neutral way that both sides can use for argument purposes and doesn't put the Court in the position of perhaps commenting on the evidence, which is what I'm afraid this might do.

MR. RANDLES: Thank you, Your Honor.

B is not in evidence.

On Page 4, the FTC guidelines, in the

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'50s. I believe the only way it might have come in is some cross-examination of Plaintiff's -- Plaintiff's witnesses, and none of them were knowledgeable. I believe Dr. Pollay and perhaps Dr. Benowitz may have been crossed on parts of this, but they weren't knowledgeable. So, I would suggest that B is not cumulative and would be helpful.

THE COURT: Can you go through and tell me which ones would be also in that category, so I can weigh it in context?

MR. RANDLES: Yes, Your Honor.

I withdraw No. C, the Congressional hearings on labeling. Mr. Coon raises a Noerr-Pennington issue. I don't necessarily agree with it, but I'm bothered enough by it that I don't want to go there.

D, on Page 4, similarly has been referred to, I believe, in cross of Plaintiff's experts, but they were not knowledgeable. The same.

E is the setup of the cigarette testing laboratory, which Dr. Benowitz testified a bit to but only in the most general way. So, I don't think that would qualify as cumulative.

THE COURT: Is this testimony though

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background facts to the smoking machines?
MR. RANDLES: This is the actual setup of the laboratory.
THE COURT: For smoking machines?
MR. RANDLES: Yes, Your Honor.
THE COURT: Oh, we have covered that, we have covered that, and we have covered that.
MR. RANDLES: All right.
THE COURT: Mr. Thomas has demonstrated it smoke-a-tively.
MR. RANDLES: We may not agree with their portrayal.
THE COURT: I'm not suggesting it. I'm just saying it was a vivid demonstration that I don't think the jury needs to know more about the setting up of the smoking machines.
I think it really is fair to say that events have overtaken this. They know that there was government involvement in the manner in which the standards were set, and they know that both sides have a dispute over whether it's a good test or it's not a good test.
MR. RANDLES: I think, similarly, events have overtaken F.
THE COURT: Okay.

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MR. RANDLES: I withdraw G because of my same Noerr-Pennington worry that Mr. Coon raises, without conceding that that is correct.

H is not in evidence. There may have been some cross-examination questions about this with Dr. Benowitz, but he didn't really know the details.

THE COURT: You are suggesting that I read language of the type you have set forth?

MR. RANDLES: Yes, Your Honor.

THE COURT: To the next page?

MR. RANDLES: Yes. Your Honor.

THE COURT: I'm worried about that.

You know, judges can take judicial notice of the law and can say, you know, ORS whatever number provides something.

This is sort of an editorial comment about what was proposed as legislation and what didn't happen because of an agreement being reached. That really puts the Court not in the position of being a declarer of law but of commenting on history.

And if it's relevant, I would think you could have somebody talk about the fact that it happened, without putting the Court in that

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position.

I'm not going to give H.

MR. RANDLES: Thank you.

Your Honor, I is not in evidence. We asked about it in cross, but it's not come in any other way.

THE COURT: Okay.

And J?

MR. RANDLES: I think J would -- I think J would probably fall in with what the Court was saying about H.

THE COURT: We have also had evidence about what the warnings have been.

MR. RANDLES: So, Your Honor, I would propose, to sum up, that the Court offer B, D, and I on our list.

THE COURT: Okay.

To those proffers, Mr. Coon?

MR. COON: I assume then 1A is also out. That is the Surgeon General's warning since those are exhibits in the case?

MR. RANDLES: They are already in.

MR. COON: Well, Your Honor, I have not been here. So I, of course, will trust the Court's memory on this; but I think that, from

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what I have heard, B, D and I already have been in evidence.

THE COURT: Let me suggest this. That the defense proffer an instruction incorporating B, D and I, and Plaintiff search the record to establish that they are otherwise already affirmative evidence on point.

And if it's important, then it will be developed, and if it isn't it's simply an instruction to the jury that says what the historical use of those three points.

MR. COON: Shall we take that up on Saturday with the instructions?

THE COURT: Sure.

MR. RANDLES: May I assume from your comment that there is no dispute as to the factual accuracy of our statements?

MR. COON: I would like to see what the instruction says in general.

THE COURT: You have the tabbed additions?

MR. RANDLES: Yes.

MR. COON: In general, there is no dispute about that, but I want to see the instruction.

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MR. RANDLES: Okay. Thank you, Your Honor.
THE COURT: All right. We'll take that up Saturday morning.
MR. COON: Thank you, Judge.
THE COURT: Anything else before we continue ahead?
MR. RANDLES: No. Thank you, Your Honor.
MR. COON: I don't think so.
THE COURT: Okay. Thank you.
* * *
(Whereupon, after a recess, the proceedings continued, as follows:)
* * *
THE CLERK: Be seated, please.
THE COURT: Be seated.
Are we ready for the jury?
MR. COFER: We are, Your Honor.
THE COURT: Okay. We will need to recess around 4:00 or so today.
MR. COFER: Okay.
THE COURT: 4:15 at the absolute latest.
MR. COFER: Okay.
THE COURT: Bring in the jury, please.
* * *

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(Whereupon, the jury was escorted in, and the proceedings continued, in their presence, as follows:)

* * *

THE COURT: Good morning, jurors.

JURORS: Good morning.

THE COURT: Mr. Cofer.

MR. COFER: Thank you, Your Honor.

DR. RICHARD A. CARCHMAN

was thereupon called as a witness on behalf of the Defendant and, having been previously duly sworn, was examined and testimony in direct examination continued, as follows:

DIRECT EXAMINATION CONTINUED

BY MR. COFER:

Q. Good morning, Dr. Carchman.

A. Good morning.

Q. Why don't you come on back down, if you would. Why don't you stand over here, and let's use this chart again. Let's do it this way.

Okay. Now where we left off yesterday, you had told the jury about the various approaches,

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to non-conventional cigarettes that Philip Morris had taken. You told them about Delta, Delta II, Sigma, and we left off with Accord.

I don't want to replow old ground, but are these examples of the handmade cigarettes that you were describing? And, if they are, would you just show them to the jury, please?

A. For example, this is the one flash bulb in the tobacco.

Q. And Dr. Carchman, please, I don't think you are permitted to pass them to the jury, but if you would just be sure that all of the jurors have a chance to see them, take them, and start here, and just walk down and show it to them. Okay.

A. This is just an example of what one of these things actually looks like.

Q. And please keep your voice up so all of the jurors can hear you.

A. Sorry. And to try to heat the tobacco. I think we bought several million flash bulbs to do this. In terms of a variety of other ones, I mean, what we have here is I tried to point out just illustrative of some of the things that we were trying to do, and here are some additional examples of different kinds of heating approaches of

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different kinds of prototypes that we tried to use that eventually led to the Accord cigarette. You can see wires and terminals.

Q. Make sure the people in the back row can see, as well.

A. I'm sorry.

Q. Okay. All right.

Well, that takes us up then, I think, to Delta -- I'm sorry -- to Beta. And, in fact, is Beta still being test marketed as is Accord?

A. It's on the Richmond test market, limited test market in Richmond right now.

Q. And if you would, just tell the jury how the Accord works. Just explain this and this, and you might even show them. Do not smoke it.

A. Basically, the Beta is an evolution of this bottom pathway, the electrically heated. What you have here is the battery, and it's a battery that holds a charge, and it delivers that charge very quickly. So there are two important parts to this in terms of the battery, something that would hold the charge, and it's something that would deliver very, very quickly.

There's a little window in here. It tells you the status of the battery charge. It's

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rechargeable. It also tells you how many puffs you have taken.

So, this is the cigarette. It's a little, short cigarette. It's paper, tobacco and a filter. And basically you take it, you place it in the device.

There is a special sensor in the device that recognizes this cigarette. You can't put a conventional cigarette in here. You can, but it wouldn't work, and it probably won't fit, and it will probably break off in here. It just won't operate.

Now, with the device with a cigarette in it, if I can just demonstrate it, without lighting it.

Q. Okay.

A. A person would draw on it, while it's in here. That puff electrically activates the electrical systems here. So, it's a puff-activated device. You only get eight puffs per cigarette.

Q. Okay. Let me ask you this. Is there some time limit in which you have to smoke that cigarette?

A. You can go outside; take a puff; put it in your pocket, and come back to the courtroom.

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Wait until the next break, and go out and take another puff. Make it through lunch; have another break. Go home. Puff it. Puff it again. Put it in your pocket. Put it in your purse. Put it wherever. Wherever you are.

Q. Now, what am I handing you?

A. This is a used, one of these cigarettes that has been puffed eight times. And what you see here are these are char marks and there are four on each side. So, you get eight puffs.

So each time you puff, the heater blade, that we'll talk about, warms up, touches the tobacco, heats the tobacco, doesn't burn the tobacco, and then it's on for two seconds and then it's off. So, it delivers a certain amount of energy converted to heat, and lasts for two seconds.

Q. I'll put this on the screen for people to see it. It might help you as you describe it.

Is that in focus? Is that in focus?

JURORS: Yeah.

THE WITNESS: Here's one. Here's a second one. And if you rotate it, you would see four on each side, which corresponds to eight sets of special metal blades, that once you puff

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the battery sends electricity to the blade, heat is transferred from the blade to the tobacco, and you heat this up, and the target that we are shooting for, yesterday it was a bigger version of this, and this line right here is 500 degrees centigrade. That is what we are shooting for. We are shooting to provide heat to the tobacco to 500 degrees, and we do it by providing a fixed amount of energy over a fixed period of time. That is how this thing was designed to do. That is basically how it operates.

BY MR. COFER:

Q. Just a couple of questions about how this works.

Do you need ashtrays?

A. Well, when you are done with it, with the cigarette, you can throw the cigarette in the ashtray, but there's no ash.

Q. How about sidestream smoke?

A. There is no sidestream smoke.

Q. So, if you take it into a restaurant you need to separate into smoking and nonsmoking sections?

A. There is exhaled smoke. So, some people, if they object to seeing exhaled smoke, I would say

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you might.
Q. But there's no smoke coming off?
A. No.
Q. Did you light the end?
A. No.
Q. Okay. Let me get the next chart. What I would like you to do is explain to the jury the technology and the efforts Philip Morris had to undertake in order to bring that product from the drawing board to a commercial product?
A. What happened to the little --
Q. You want it? I'll get it.
A. So, this is a blowup version of this -- of this battery so, that is the cigarette. And the blue and the red are the heater blades. The red is to suggest that this is the one that is heating up the tobacco. The blue aren't.
So, you insert this cigarette in, and there is a special sensor in here, that infrared sensor, that senses that you have got the right cigarette in here.
Q. We are going to find a way to place him --
A. I'm sorry.
Q. -- so you don't block the view of the

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jury.
A. I can sort of reach around.
Q. Use this or maybe go over it.
A. Okay.
Now, there is some microchip, micro circuitry in here, very similar to what you would find in a cellular phone or a small computer, that provides the necessary program to make sure that what you want to happen happens.
This battery is special prismatic battery. And so what you have here is the description of this. Plus you have names.
So the electronics was done in cooperation with Sanyo, a major battery manufacturer, major battery developer. They created a battery, special prismatic battery that did not exist before that was able to deliver the energy we needed as quickly, as quickly as we needed it.
Q. Now, let me stop you there.
So then Philip Morris, in conjunction with Sanyo, actually invented a battery that went into this product?
A. Yes. Yes.
Q. Okay.

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A. And this just gives you some indication of the people we collaborated with to do some of these things.

Another, to me, important piece are metal heater blades. When we started out, the suggestion was well, let's just use the metals that are in a toaster or in a hair dryer, Haines 214, it's a nichrome, nickel chromium alloy grade. Great to use. Unfortunately, it didn't work the way we wanted to it work in here.

And so between the material scientists at Philip Morris and some expert consultants on the outside, we surveyed the world of metallic alloys, of which there are over 3500, and concluded none of those alloys, either because of machinability, ductility or safety concerns, was going to make it.

Q. What does ductility mean?

A. In other words, you want to have a metal that you can mold and stretch, but it has to be strong so it doesn't break. It has to -- you'll need to be able to make blades out of this.

So, what happened was that the Philip Morris material scientists and the material scientists at Oak Ridge National Labs in Tennessee, which is a government back laboratory, got together

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and basically created a new alloy called iron aluminate. Never existed before.

It has some properties that are, it turns out, of great interest to the federal government for other reasons.

But they created this totally new alloy that satisfied all of the engineering aspects and satisfied the safety concerns that I referenced.

Q. Now, when you say they created a new alloy, is that the same thing as saying they invented a new metal?

A. If we mean metal and alloy, the answer is yes.

Q. Okay. Go ahead.

A. So, these are the kinds of companies actually around the world that we worked with to develop this product that is on test market.

I need to say that, though this is on test market, it is continuing to change. This is not where we are going to end up. We are still moving forward on this to try to improve the characteristics of this product in terms of what the consumer likes or doesn't like. And there are some people who don't like this, for a variety of reasons, and to improve some of the characteristics

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that we'll talk about in the a little bit, that I think are important and the right kind of things to do.

Q. Now, on that point, when you test market, do you actually solicit feedback from the consumer?

A. Yes.

Q. And then the idea is to incorporate what they like, what they don't like into an improvement of that product?

A. We try to.

Q. We show just a regular Accord cigarette, the blue package.

Does Accord also come with menthol flavors?

A. Yes.

Q. And are both being test marketed?

A. Yes.

Q. How about the tobaccos that are used? Anything special about the tobaccos?

A. It's high-quality tobacco, the kind of tobacco you find in a regular cigarette.

Q. Okay. Anything else on this chart?

A. I don't think so.

Q. Okay. Well, let's move to the next one then.

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Now, tell the jury about the sort of tests that have been conducted on the Accord and how those test results compare with those of a conventional cigarette?

A. Maybe a little bit of background first, Mr. Cofer. And what I'm going to try to show here is basically how we test all of our product changes. What I'm talking about is not unique to this product. And this is not all of the data. All of the data was presented last year at the Society of Toxicology meeting up in Seattle, and that appears in publication.

And when I was at Health Canada last year, I presented a more detailed scheme of this to the Department of Health and the public health officials, and that is going to appear in the public scientific literature, and these data were taken up to Washington and presented to the U.S. Food and Drug Administration, as well, about a year or so ago.

So, a variety of scientists have seen the data, public health officials have seen the data, and some government officials, U.S. government officials and Canadian government officials have seen this data.

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And again, this is just part of what we have done. And our testing scheme, which we'll talk about in a little bit, this is just the standard kind of testing that we do.

So, the first thing I'm going to talk about is what comes out the end of this cigarette. And it is put in here. And somebody puffs it, and smoke comes out. What kind of stuff? What kind of stuff comes out that the smoker is going to inhale?

The red line tells you that that was a conventional cigarette, a Marlboro. That would tell you the kind of things that come out. The blue line tells you what comes out with this. That is all this is meant to represent.

Q. Let me ask you about this. Benzo(a)pyrene; we talked about that yesterday?

A. Yes.

Q. Volatile nitrosamines?

A. Yes.

Q. Tobacco-specific nitrosamines?

A. Yes.

Q. Benzene phenols?

A. Yes.

Q. Acetaldehyde?

A. Yes.

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Q. Hydrocyanide, nitrogen oxides, carbon monoxide.
A. Yes.
Q. Are those all things that have been associated with cigarettes and suspected of being one of the reaps cigarettes may cause diseases?
A. These are some of the things, yes.
Q. Okay.
A. Now, as I said before, we looked at almost five dozen things coming out, heavy metals, a variety of other materials. The general trend is the same.
So, for benzo(a)pyrene, there's a 96 percent reduction. This is another polyaromatic. Hydrocarbon, 99 percent reduced. Volatile nitrosamines, 99, 93 percent. The TSNA's, depending upon which ones you're looking at, you're saying 15 percent, 85 percent reduction.
Q. Now, let me stop you right there.
The benzo(a)pyrene and benz(a)anthracine, those are what are called PAH's?
A. Yes.
Q. Okay. Now, with respect to nitrosamines, yesterday Mr. Burnley was asked about the NOD process, and the purpose of the NOD process was

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trying to reduce nitrates; is that right?
A. Yes.
Q. Now, Mr. Burnley was asked whether one reason you want to take nitrates out is so that you'll reduce nitrosamines?
A. That is one of the reasons, based upon some hypotheses about how these things are formed when you smoke a cigarette.
Q. But just so it's clear, Mr. Burnley is an engineer and you are a scientist; right?
A. Yes.
Q. And, in fact, one of the reasons you want to take nitrates out is to reduce nitrosamines; right?
A. And some other things, as well. Some oxides of nitrogen are things that you want to reduce. And that serves that purpose, as well.
So, you basically take down to a very significant extent everything that is represented here and, in general, everything else that everybody has raised as an issue.
I should point out that this is really a comparison between the conventional cigarette and a non-conventional cigarette.
If you had the Next cigarette --

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Q. Here.
A. Oh. Thanks. With the conventional cigarette, a big difference is 97 percent of the nicotine and some other stuff is gone. It would look like this red, red line, straight down the board, with absolutely everything.
Q. Wait a minute. If you took out 97 percent of the nicotine in the Next, why wouldn't you reduce nitrosamines?
A. It reduces a little bit but nothing compared to what you are seeing here.
Q. So, with the Next cigarette are there still nitrosamines?
A. Oh, yeah. There is actually a cigarette on the market by -- I don't know the name of the cigarette -- it is by Star Tobacco -- in which they have removed basically all of the measurable nitrosamines from the tobacco. It still has nicotine in it, but they have changed the process so there's almost immeasurable amounts of these things right here. It has nicotine the way the regular commercial cigarette does. When you smoke that cigarette, you get very little, if any, of these, and that cigarette still has nicotine.
So, I only bring that up from two

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perspectives.

The conventional cigarette, when you smoke it the way it's supposed to be smoked, burn it, you are going to get all of these things. When you heat the tobacco and don't burn it, you get a lot less of these kinds of things, and many other kinds of things that people expressed a concern about.

Q. Now, we have another chart that shows additional testing. Anything else you want to describe on this chart?

A. I don't think so.

Q. Okay. Okay.

Did Philip Morris, in fact, do biological testing on the Accord? And, if so, tell the jury what you did and what the results show?

A. Again, this is exactly what we do for any kind of cigarette design change. So, what we are doing for the Accord is within the box that we operate.

And the biological activities that we are looking at fall into three categories. One is what's called mutagenicity, and here we use a very standard kind of assay that governments use around the world, other companies use around the world,

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basic scientists use. And, basically, you take a special kind of bacteria that Bruce Ames, basically, helped created. It's called the Ames assay, and you take those bacteria and you treat them, either with smoke or condency, chemical or drug, and what you are looking for is a mutational event. You want to change the DNA of that bacteria in such a way that you can then measure whether a mutational event has occurred.

Q. Okay. Now wait. Let me just make sure I understand. You have an assay, the Ames assay. And basically, you put this stuff in there and you see whether it causes an assay to mutate or to change the cell structure?

A. That's correct.

Q. Okay.

A. And the reason for doing this is it's felt that there's a relationship between mutational events and cancer. Not all things that cause mutation cause cancer. Okay. And not all cancer is caused by mutational events. But it's a flag. It just tells you something.

I would say for tobacco products, the activity that you see in this system is all related to the tobacco. It is the largest single

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contributor to this activity and what they represent.

Q. Well, let me stop you there. What do you mean it's related to tobacco? Tobacco compared with what?

A. Anything else in the cigarette.

Q. Additives? Ingredients?

A. Papers.

Q. Okay.

A. Adhesives. Whatever else you wanted to look at.

Q. Okay.

A. So, what you see here is in this assay you get a 97 percent reduction in this activity.

Okay. Now, what's causing this reduction? I think the inference that we make is the reduction in some of those chemicals that are coming out in the smoke. There is just less of them and less of them.

The next assay, and this is an in vitro test tube type assay. Here is another test tube assay.

Q. And let me just stop you there. The jury has heard about this, but let's just go through it one more time.

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In vitro versus in vivo. What are the differences between those two?

MR. COON: Excuse me. Before you answer that, Doctor, could we approach for one moment, please?

MR. COFER: Yes.

* * *

(Whereupon, a sidebar was had, and then the proceedings continued, as follows:)

* * *

THE COURT: Okay. Mr. Cofer.

BY MR. COFER:

Q. Go ahead, Dr. Carchman.

A. In vitro are test tubes. You are working with cells or bits and pieces of something. So, in this cytotoxicity assay -- and again all of this was presented at the toxicology meeting, all of this was presented to Health Canada, all of this was presented to the U.S. F.D.A -- so, you take mammalian cells, so these are bacterial cells, so you take the mammalian cells and you put them in tissue culture.

Q. What are mammalian cells?

A. You or I or the jurors.

Q. Okay. Like mammals?

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A. Like mammals, yes.
Q. Okay.
A. And you basically expose these cells to the smoke. And you are asking the question: Does the smoke kill or damage the cells? For tobacco products, the smoke will damage the cells and kill the cells. So you are measuring cell death and cell damage.
Q. Is that another word for cytotoxicity?
A. Yes. Cyto, meaning cell. Toxicity, meaning harmful.
Q. Okay.
A. Okay. And what you see here in this type of assay an 80 percent reduction in cell damage and cell death.

Now, this in vivo study is done in living animals. All of this that I have presented, the chemistry and the biology, is also done using validated assays that other people looked at and said these are the right things to do and you are doing it right way. And I believe we'll talk more about that later.

But you take the cigarette or the Accord, and you basically use it and generate smoke. The smoke from the Accord, the smoke from a

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conventional cigarette, and you have groups of animals, and you are exposing these animals by the nose-only route. So, if they are going to breathe, they are going to breathe in this smoke. And this exposure is done in such a way as to exaggerate the exposure anybody would possibly get. So what you have is six hours a day, seven days a week, for 90 days, these animals are exposed.

Q. Okay. Let me stop you. Are those what's known as inhalation tests?

A. Yes.

Q. The jury has heard about mouse skin painting, but these are where the animals actually breath the smoke?

A. Yes.

Q. The whole smoke?

A. Yes.

Q. Okay.

A. At the end of that 90 days, there's another group that has also been exposed. They are no longer exposed to smoke. And you look at those animals for the next 42 days. So they are not being exposed to smoke and you are asking the question is any of the changes that you might see during the first 90 days, do those changes get

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worse? Progression? Do they not change at all? Or do they sort of go back to what it was like before the animals were exposed? Those are very, very important questions to ask.

And the animals at the end of all of this are sacrificed and examined, and the kinds of things that are examined are all of the blood chemistry, all of the organs functions. Emphasis is given to the respiratory tract, from the nose down, down to the lungs. Molecular biological determinants are done. Biochemical determinants are done.

But for the purpose of this presentation, the only thing that I'm going to talk about is irritancy, which is a reflection of changes in the respiratory tract of these rats in response to inhalation of smoke.

And, again, for testing cigarettes, the tobacco smoke is the single largest determinant of this end point as well.

So what you see here is a 60 percent reduction in the irritancy.

I can also tell you that there was no progression to anything, anything else. Most of the changes that we saw over this period of time

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reverse towards normal. Not all of them. Some of them.

Q. Now, what do you mean there was no progression to anything else?

A. 90 days is not enough time to look for cancer. Okay. This is called a sub-chronic study. It is a standard type of study that government labs and industrial labs, scientific labs carry out. And so what you are looking for are irritative changes that may be precancerous changes.

So, a significant precancer change would be suggested, not proved but suggested by a progression of cellular, cellular changes.

So, if you damage the cells, you might get hyperplasia, cells get bigger or maybe change the way they look. That could progress to metaplasia. Could progress to something called dysplasia. Could progress to cancer. There's a whole series of steps.

And what I'm saying here is there was no indication of progression. That doesn't mean, if we went out for two years and did this, we wouldn't see anything different. But, generally, if you don't see those kinds of changes here, you are not going to see them later, later on.

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And with these other kinds of assays, the biological assays and the chemistry assays, it becomes, I think, reasonable to make the kinds of statements that I'm making here about this product.

Q. Okay. Anything else about this chart?

A. No.

Q. Okay. Why don't you go back down by the monitor, and let me look at my notes, and I'm going to show you some other documents here in a just a moment.

First, let me ask you this, Doctor. Do you have any idea how much money Philip Morris invested to bring this Accord product to where we are today?

A. Approximately, $200 million dollars.

Q. You talked about Premiere. You talked about Eclipse as unconventional cigarettes that have gone on the market.

To your knowledge, has there ever been a product like Accord that has been developed and brought to market?

A. No.

Q. And do you have an opinion, to a reasonable degree of scientific probability, whether the Accord could have been developed any

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earlier than 1998?
A. I do have an opinion.
Q. And what is your opinion?
A. I don't think it could have been developed any earlier than when it was developed.
Q. And why is that?
A. I gave some examples in terms of the creation of the new alloy, the creation of a new battery, and a system that allows us to deliver the kind of energy we need to control fashion to do the kinds of things that we have. The material sciences didn't exist. The battery technology didn't exist.
Q. Okay. I want to change topics and talk about biological research. And we have touched on that some. But I would like to go into that in more detail.
First of all, tell the jury what is biological research?
A. I have given you some examples in terms of this Accord product testing. And these examples are not limited to the kinds of things that have been done, that we do, other people do.
It's basically an examination of elements of your product as it might impact some biological

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system, whether it's in a test tube or in an animal or in a human being.

Q. And, again, so we keep all of the terms straight, in vitro is a type of biological research in a test tube; right?

A. Yes.

Q. In vivo is a type of biological research in a living animal?

A. Yes.

Q. Right? Okay.

Well, why do we do biological research? What's the purpose? What's it designed to tell us?

A. Well, several things. If you are trying to understand what constituent may be important for a biological effect, this is a way to go.

If you are trying to understand a mechanism by which a constituent is doing something, you can't do it without this approach. If you are trying to modify or improve a product, these biological assays are used as mileposts to tell you whether you are moving in the right direction.

So, if your benzo(a)pyrene levels went dramatically up or the mutagenicity went up or the irritancy went up, I can tell you when that happens

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that is the end of whatever the changes that we are doing or whatever material we want to use.

Thank you.

Q. Tell the jury what role personally you had in biological research at Philip Morris?

A. Excuse me.

As I said, when I first came, this was one of the areas of responsibility that I had. And over the ten years I was with the company, I played with others a pivotal role of continuing to evolve what we do, and how we do it, and what we say about what it is we have done, and who we say it to.

Q. Now, you to used the phrase continuing to evolve. As part of your job, did you review the biological work that went on at Philip Morris before you were hired?

A. Yes.

Q. What biological research did Philip Morris do in-house in Richmond?

A. When I came, ten years ago, they had Ames assays in Richmond. They were looking at a variety of other mutagenic assays that were mammalian cells, not in bacterial cells, and there was some testing in human smoking.

Q. What biological research did Philip

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Morris sponsor in outside labs in the United States?

A. Then we go back 35, 40 years, and we have in vitro, in vivo, inhalation, both in the United States, at provident testing labs, at institutes in foundations around the world, up to and including all of these inhalation studies, including some lifetime inhalation studies.

Q. Was any of this research that Philip Morris conducted in-house in Richmond or sponsored in outside labs in the U.S. published?

A. Some of it was, yes.

Q. Okay. I want to show you a document that has been marked as Plaintiff's Exhibit 63.

Let me show you. Can you see Plaintiff's Exhibit 63 there?

A. Okay.

Q. "Need For Biological Research," by Philip Morris Research and Development. Are you familiar with this document?

A. Yes.

Q. Okay. Let me just read you some of the portions, and then I want to ask you about something specifically. And tell me whether I'm reading this correctly.

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"There is every indication, technically, sociologically and economically to indicate even a greater concern in the future for products related to health."

Do you know when the time period is when this document was created?

A. I want to say in the '60s.

Q. "Fortunately, through foresight in the industry, and more specifically Philip Morris, research was well accomplished and knowledgeable in this field and in a position to positively influence testing procedures so as to provide objective and reliable data."

"We see and anticipate as realistic and as a next step the institution of a biological testing program on competitive brands for carcinogenic potentials and also for publication of these figures."

"The technique for doing so is available irrespective of the validity of the findings, which at this point are technically judgmental. These techniques have been established by Dr. Bock of Roswell Park and are in the literature."

Do you know who wrote this document?

A. It was somebody at research and

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development.
Q. Now, was the purpose of this document to recommend additional biological research?
A. Not simply talking about recommending additional, additional work, but I think what, from my perspective, if I recall this document accurately, was to say there are lots of assays out there; some of them have been validated, some of them haven't; nobody really knows what they mean; that the conclusions are oftentimes judgmental.
And that's pretty much what I tried to say when I put up the board with Accord with a biological assays, in terms of milestones or being red flags. This is the best we have available to us.
So what was said, I think, this was in the '60s, to some extent remains reasonably accurate today. We are more sophisticated. We know some more, but there's still some additional knowledge that needs to be gave, not just for cigarettes.
Q. Okay. Now, let me ask you this, because this has been pointed out in earlier testimony.
We have reason to believe that, in spite of a gentlemen's agreement from the tobacco

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industry in previous years, that at least some of the major companies have been increasing biological studies within their own facilities.

When you worked at Philip Morris, were you ever told that there was a gentlemen's agreement not to do biological testing?

A. The only time I have ever seen that is in this document. I have never heard that.

Q. Are you aware whether Philip Morris at any time had an agreement not to do biological testing?

A. I don't know whether there was such an agreement or any such understanding. All I can tell you is that when you look back and see what they did, this -- whatever this gentlemen's agreement might have been or might not have been, it's not evident by the facts and behaviors based on the documents and reports that I have seen.

Q. So, did Philip Morris do biological testing?

A. And still does.

Q. Did they do it in-house in Richmond?

A. Yes.

Q. Did they do it in the United States?

A. Yes.

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Q. And did they do it in Germany in INBIFO?
A. Yes.
Q. And I want to talk about INBIFO specifically in a minute, but I want to show you one other document first.
Let me show you Plaintiff's 108. Is that 108?
A. I can't tell.
Q. Okay. This is a letter from Bob Seligman to Alex Spears. First remind the jury who Bob Seligman is?
A. I think at this time he is probably the head of research and development for Philip Morris.
Q. Who is Dr. Alex Spears?
A. Dr. Spears is a tobacco scientist and I think former CEO of Lorrilard Tobacco.
Q. This is dated March 31st, 1980; right?
A. Yes.
Q. The first page talks about potential long-term scientific studies; right?
A. The second page.
Q. The second page. Thanks.
The first page after the cover letter?
A. Yes, sir.
Q. And then, after that, it lists 17

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different areas of potential long-term scientific studies; correct?

A. Yes.

Q. Now, let's turn to the next page. And the jury has seen this. Subjects to be avoided, and I have highlighted these portions. These are mutually exclusive with respect to Page 1. This is Page 1; not the cover letter; right?

A. Yes, sir.

Q. 1, developing new tests for carcinogenicity does not contradict No. 1 of Page 1.

2, attempt to relate human disease to smoking.

3, conduct experiments which require large doses of carcinogen to show additive effect of smoking. (Implantation.) Et cetera.

Are you familiar with this document?

A. Yes.

Q. Let me ask you this.

Did Philip Morris, in fact, avoid those subjects?

A. If I might, when I first read this document and I looked at that and I said to myself do I have a page from another document stuck on

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here by mistake? Because the previous page of 17 items basically described the things that are being talked about with regard to avoidance.

So, I said to myself, you know, Seligman and Spears are good scientists, and if this indeed is the same document maybe I have to go back and read this again to figure out what the Dickens this last page might be saying, because the last page is totally inconsistent on the surface with everything that is listed here. Everything here goes right to that last page.

So, if we can put that last page on, Mr. Cofer.

Q. You bet.

A. Now, I admit, I had met Dr. Seligman, and I know Dr. Spears. I have never talked to them about this. But I know I have had a lot of conversations with Dr. Spears about testing, per se. So, development of new tests for carcinogenicity, my interpretation, and it's my interpretation is what he is saying is we have enough tests for carcinogenicity. Let's try to understand better what they mean.

Again, because on the previous page he's talking about doing these, doing these things, and

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he's talking about doing them in a way that might be more enlightening.

Attempt to relate human disease to smoking. Again, what's on the previous page actually tries to do this. So, I can only assume what he's trying to do is get at some real mechanisms, rather than just phenomena.

Or what scientists tend to do, myself included, from time to time, is you make an observation here and you try to extrapolate it to something else.

So if you have an observation in the Ames assays, bacteria, you know, you might want to try to relate that to humans. And I think that is what he's concerned about in No. 2.

Conduct experiments which require large doses of carcinogen to show additive effects of smoking. I think we already knew. And I say we. I don't mean just Philip Morris. The scientific community knew that if you did this you are going to get cancer in the lung.

The question is what does this mean in terms of a smoker and a disease like lung cancer?

So, again, when I first read it, I thought this was part of some other document. And

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when I read it again, I said this is inconsistent with the second page. And so the only interpretation I can come up with is that this kind of avoidance relates specifically to try to do good science with what we have.

Q. And let me ask you about the third item listed. "Conduct experiments which require large doses of carcinogen to show additive effect of smoking."

When you described the in vivo tests conducted with respect to Accord, you mentioned that the mice were exposed to smoke much longer, much more smoke than a person would get; is that right?

A. Yes.

Q. And is that an example of conducting an experiment where the animal is exposed to high doses?

A. That was the concept, yes.

Q. Okay. Now, I want to talk about INBIFO. But first, just to kind of put it in perspective, Philip Morris does research in Richmond?

A. That's right.

Q. Has research facilities? It also has research facilities at INBIFO?

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A. Yes.
Q. Any other place that Philip Morris has research facilities?
A. Yes. We have a separate research and development in Neuchatel, Switzerland. We have a manufacturing facility there. And that research and development basically is a quality assurance and a support for factories in that part of the world. And they do some product development work.
Q. Tell the jury about Centers For Excellence, and tell the jury what that phrase means with respect to Philip Morris research?
A. Over the years, and I'm talking here many, many years, we have had various parts of the company, some people doing some of the same kinds of things, and what evolved over time was that maybe we needed to concentrate various efforts in different parts of our organization and build up the expertise, minimize repetitive or redundant kinds of behaviors.
So, for example, INBIFO in Germany became the center for doing biological tests, and the kinds of tests I'm talking about relate to cigarette design changes, understanding new assays, molecular biology, those kinds of things for

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certain chemical changes, observations, FTR in Neuchatel. The R&D was set up with the right kind of other people with the right kind of technical expertise there, as well, and --

Q. Let me stop you for a second because I thigh the reporter's tape went off. So let's let her change the tape.

Now, you just told the jury about the sort of research that went on at INBIFO, and I think you were starting to tell them about what happens in Richmond. So, go ahead if you would, please?

A. In Richmond, where I have the physicists, the material scientists, the kinds of prototypes that I was showing you, that is where that kind of work, that kind of development was going to be centered. That was going to be one aspect for this Center For Excellence.

Q. Okay. Let's talk about INBIFO. When you were at Philip Morris, what was your relationship with or responsibility with respect to INBIFO?

A. I was given responsibility to learn as much as I could about all of the biological testing and, since that involved INBIFO, to learn everything I could about the institute. And very

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quickly I took several trips over there. I met the people. I met the scientists. I stayed there, watched what they were doing, and argued with them about things the way scientists can argue about things.

And I then became the gatekeeper, if you will, between what was going on in INBIFO and what was going on in Richmond. So, if anybody wanted to do something at this resource, they had to come through -- they had to come through me.

Q. Let me stop you there.

In an organization like Philip Morris and INBIFO, why can't the scientist in Richmond just pick up the phone and call up INBIFO and order up a bunch of tests? Why do they have to go through you?

A. Well, my role is a gatekeeper. We had this unique resource, and the personnel in the company where doing stuff that was very, very important. So, it was special resource, high technology, limited capacity, 150 scientists working with various degrees of specialties and function. You don't want to have anybody calling up and saying hey, you want to run this for me? You want to run that for me? Pretty soon the whole

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system degrades and the critical studies that you want to go on, or have going on, sort of fall apart.

So, my role was to make sure that everything that was outlined in the plan, the business plan, was done in a timely and effective fashion, and that the information that INBIFO got then went to the people who needed to see it.

So, I was the Richmond interface. There was a Neuchatel-FTR interface. They also had work coming in that I sort of oversaw the entire -- the entire process.

Q. The jury earlier has heard the number of scientists at Philip Morris at various points in time Richmond up around 600? Does that sound right or is that high? Low?

A. I think it's a little bit more, but that is close enough.

Q. Okay. So, if you have 600 scientists at Philip Morris in Richmond, are they working on a bunch of different types of projects?

A. Yes.

Q. Does somebody have to prioritize who gets access to those unique facilities in INBIFO?

A. Yes.

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Q. And was that part of your function?
A. Yes.
Q. INBIFO was an acronym for what? What does it stand for?
A. The English translation, the Institute For Biological Research.
Q. When you arrived with the company in 1989, was INBIFO and Philip Morris's relationship with INBIFO a secret?
A. I actually knew that before I came to the company.
Q. How did you know about INBIFO before you went to work at Philip Morris?
A. One, they had published some of their work and presented some of their work at scientific meetings. And actually Dr. Jim Charles asked me to do some consulting for the company on ingredients issues in I want to say '85, '86. And I had an opportunity to talk to him about internal work at the company, had relied upon in their decisions, and so I knew about INBIFO then, as well.
Q. Over the years have companies, American companies, other than Philip Morris, contracted with INBIFO to have work done?
A. That has happened from time to time, yes.

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Q. Now, does INBIFO have any sort of laboratory certifications?

A. Yes.

Q. Tell the jury about that.

A. If you want to submit data to a government agency, whether it's here in the States or it's over in Europe, you need to have a special kind of certification. For this kind of testing, it's called GOPs, or Good Laboratory Practices.

So, INBIFO sitting in Germany, there's an international organization that is part of what's called the OECD that certifies facilities. They will come to your facility. They will spend some time. They'll look to see what you are doing, how you're doing it, how you keep your records. How you store your papers, how you communicate information, if you do animal work, how all of that is set up, because there are very specific testing guidelines for using animals. And those guidelines are laid out.

Now, the U.S. Food and Drug Administration accepts that certification. So, if you wanted to submit data from INBIFO to the FDA, they wouldn't even bother looking at it unless you had this kind of certification.

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Q. And let me ask you about that. Does this sort of certification require certain steps to be taken with respect to the preparation of documents and the retention of documents?
A. Yes.
Q. Now, and in what city is INBIFO located?
A. Cologne, Germany.
Q. Okay. Let me show you what has been marked as Plaintiff's Exhibit 153. Actually, if -- I think it's Plaintiff's Exhibit 91. Which is it, 91 or --
PARALEGAL: 153.
BY MR. COFER:
Q. Okay. Plaintiff's Exhibit 153.
Can you see the 153 down there?
A. Yes.
Q. All right.
Tell me when it is? I'm trying to make it so the jury can read that. Tell me if I have done that.
A. You are asking me?
Q. Yes. Well, I mean is it clearer?
A. I can read some words on it, yes.
Q. Okay. Well, let me read it. Tell me if I can make it any clearer. Is that clearer?

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JURORS: Um-hum.
BY MR. COFER:
Q. Probably that is the best. Let me read it to you.
And, Dr. Carchman, confirm that I have read that correctly. I'm going to read the highlighted portions.
"Ship all documents to Cologne by Tom."
Who's Tom?
A. That is Dr. Tom Osdene.
Q. "Keep in Cologne. Okay to phone and telex. These will be destroyed."
Something "important."
"That if important letters have to be sent, please send to home. I will act on them and destroy."
And then over here something about "advise Ryland" or something "re INBIFO."
THE COURT: That is not on the screen, Mr. Cofer.
MR. COFER: Thank you, your Honor.
BY MR. COFER:
Q. Okay. Let me do that again. And, Dr. Carchman, if I'm reading it and it's not on screen, tell me. I want to put it in front of the

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jury, even if they can't read it, so they'll know where this is off of.

"If important letters have to be sent, please send to home. I will act on them and destroy."

Did I read that correctly?

A. Yes.

Q. Okay. Here's what I want to ask you.

Based on your experience as the gatekeeper for INBIFO, and your review of all of the INBIFO files when you got Philip Morris, do you have knowledge as to whether INBIFO has maintained all of its scientific records going back to the time that Philip Morris purchased that lab?

A. Actually, when I looked at the facility during that first year, they had documents going back from before we bought INBIFO. So, in the late '60s they still have documents. I found no evidence at all that any documents have been destroyed. Everything the German scientists did, believe me, they kept.

Q. And let me make sure we are on the same page. I'm not talking about what Osdene did with documents he received. I'm talking about the source in INBIFO?

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A. Yes.
Q. Were those documents there?
A. Yes. And, before me, there were two other I call them gatekeepers. One was Dr. Bob Pages. And then before him was Dr. Jim Charles. And both of those fellows are good scientists and actually very good friends of mine. And Dr. Osdene actually used Dr. Charles and Dr. Pages as the gatekeeper, and they received information from INBIFO on a regular basis, reports, preliminary reports, final reports. And as far as I know, okay, I have no information that would suggest to me that anything like this went on or was characteristic of any kind of behavior.
Q. So, you told the jury you know that Charles received documents from INBIFO?
A. Yes.
Q. Jim Charles; right?
A. Yes.
Q. You know Bob Pages did; right?
A. Uhm-hmm.
Q. Did you receive documents from INBIFO while you were at Richmond?
A. All of the time.
Q. Did you know whether other scientists at

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Philip Morris received documents from INBIFO?
A. The two other people that would get them regularly would be my boss, Dr. Jim Charles, and then his boss, Dr. Ken Hauten, and then when Jim retired it was myself and Ken Hauten and Dr. Cathy Ellis.
Q. Now, Osdene's notes say what they say, but here's what I want to ask you, based on your experience at Philip Morris.
Have you been aware of any effort to destroy documents from INBIFO rather than produce them in lawsuits like this one?
A. No, with just a little explanation.
Q. Please explain, if you need to.
A. When I came to the company, I was asked to be responsible for this. I looked at a bunch of documents, INBIFO documents, and on the bottom of some of the these documents were these numbers. I had no idea what those numbers were.
Several years later I found out that those documents had actually been turned over in another litigation event, many years before I -- before I had seen it. And I think that something close to a million pages of INBIFO documents had been deposited in the Minnesota Depository, and are

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on the Internet.
So, I have no reason to believe that anything was ever done to destroy or hide the INBIFO documents.
Q. Okay. Now, let me show you Plaintiff's Exhibit 97. It's Exhibit 97.
Can you see that?
A. Yes.
Q. This is a letter dated March 31st, 1977; right?
A. Yes.
Q. Personal & confidential, to Dr. Max Hausermann, Neuchatel. Tell the jury who Max Hausermann is?
A. At that point in time, Dr. Hausermann was head of R&D in our R&D facility in Switzerland.
Q. It's from Dr. Seligman; right?
A. Yes.
Q. Tell the jury again who Bob Seligman is?
A. At this time he might have been the head of R&D in Richmond. In fact, he probably was.
Q. In any event, he was a senior person R&D in Richmond?
A. Yes.
Q. "I received a copy of Helmut Gaisch's

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March 24th, 1977 letter to Jerry Osmalov concerning pesticide residue analysis. As you were copied, you know that Helmut was requesting that we send samples directly to INBIFO. This suggested procedure is in direct conflict with our communications from the New York office. We have gone to great pains to eliminate any written contact with INBIFO, and I would like to maintain this structure.

"Therefore, I am advising Jerry Osmalov to continue sending samples to Neuchatel for transshipment to INBIFO. If this procedure is unacceptable to you, perhaps we should consider a "dummy" mailing address in Cologne --"

Is that Koln?

A. Yes.

Q. Spelled differently?

A. It is the way the Germans spell it.

Q. -- "for the receipt of samples. The written analytical data will still have to be routed through FTR if we are to avoid direct contact with INBIFO and Philip Morris U.S.A."

What's this letter about?

A. Actually, I don't really know. I mean I know Dr. Hausermann. I know Dr. Seligman. I know

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Dr. Helmut Gaisch. I don't believe I have ever met Jerry Osmalov. I think I know what it's saying. I mean, I read the words the way anybody else reads the words. INBIFO.

Q. Well, let me ask you this.

MR. THOMAS: Excuse me, Mr. Cofer.

MR. COFER: Yes.

MR. THOMAS: The witness has already said he doesn't know, and so now I'm going to object to speculation about what it --

THE COURT: Well that's fair. And now we are getting a new question. So, let's hear what the new question is.

BY MR. COFER:

Q. And that is exactly where I'm going.

In your experience, in your experience, did Philip Morris go to great pains to eliminate any written contact with INBIFO?

A. Not evidently, by the hundreds of thousands of documents that have come across my desk.

Q. Did Philip Morris use some sort of dummy procedure to route documents through Neuchatel to avoid any sort of evidence of contact with INBIFO?

A. Not in my experience, nor in the

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experience of the other people I know who worked in this area.

Q. Was the fact that Philip Morris, Richmond worked with INBIFO and later owned INBIFO a secret?

MR. THOMAS: Objection. Leading.

THE COURT: I'm sorry. I didn't hear the basis. The basis?

MR. THOMAS: I'll withdraw the objection.

THE COURT: All right.

Go ahead, Mr. Cofer.

BY MR. COFER:

Q. You may answer.

A. It was not a secret.

Q. Are you aware of any efforts to destroy documents at INBIFO or Richmond?

A. No.

Q. Are any INBIFO documents available to the public?

A. As I said earlier, almost a million pages are deposited in Minnesota. There are also on the Internet.

Q. Now, let's make it clear. Philip Morris did not, out of the goodness of its heart, just load those documents on the Internet, did it?

A. No, it didn't.

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Q. Those were results of lawsuits; right?
A. Yes.
Q. Plaintiffs, through discovery, demanded access to those documents; right?
A. Yes.
Q. And in some instances Philip Morris fought about it, didn't they?
A. Yes.
Q. The become line is those documents that were in INBIFO's files have been produced and are on the Internet; is that right?
A. Yes.
Q. You have told the jury that INBIFO had state-of-the-art facilities; right?
A. Yes.
Q. Excellent scientists?
MR. THOMAS: Objection. Leading.
BY MR. COFER:
Q. Did INBIFO have excellent scientists?
A. Yes.
MR. THOMAS: Objection. cumulative.
THE COURT: Oh, let him summarize and let's see where we go with this.
MR. COFER: Because we are going to the break very quickly.

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BY MR. COFER:

Q. Here's what I want to ask you.

Based on your review, your knowledge, did the scientists at INBIFO make any breakthroughs or any discoveries about smoking and health that they didn't share and Philip Morris didn't share with the rest of the world?

A. No.

MR. COFER: Time for a break?

THE COURT: Yes.

How much longer do you have on direct?

MR. COFER: I probably have -- I'm close to the end. I have got about two more topics. I would say a half an hour. I know that is longer than I speculated yesterday.

THE COURT: Well, then let's go ahead and take advantage of the opportunity.

15 minutes, folks.

Anything for the record, counsel? We are off the record then. 15 minutes.

* * *

(Whereupon, after a recess, the proceedings continued, as follows:)

* * *

THE COURT: All right.

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Plaintiff is ready?
MR. THOMAS: Yes.
THE COURT: Please bring them in.
All right, jurors.
Mr. Cofer.
MR. COFER: Thank you, Your Honor.
BY MR. COFER:
Q. Dr. Carchman, can you go back down to the monitor, please?
Now, I want to show you what's been marked as Plaintiff's Exhibit 98. This is a memo from Bill Dunn to Tom Osdene.
A. Yes.
Q. The title is "Proposed Study by Levy?
A. Yes.
Q. Is that Carolyn Levy?
A. Yes.
Q. Okay. Let me read that to you.
"I have given Carolyn approval to proceed with this study." And this is dated November 3rd, 1977; right?
A. Yes.
Q. "I have given Carolyn approval to proceed with this study. If she is able to demonstrate, as she anticipates, no withdrawal effects of nicotine,

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we will want to pursue this avenue with some vigor. If, however, the results with nicotine are similar to those gotten with morphine and caffeine, we will want to bury it. Accordingly, there are only two copies of this memo, the one attached and the original one, which I have."

Have you seen this document before?

A. Yes.

Q. Did Carolyn Levy, in fact, do the work?

A. Yes, she did.

Q. Referenced in this memorandum?

A. Yes.

Q. Is this a copy of her lab notebook?

A. Yes, it is. When I saw this memo, I went and I spoke with Cathy Ellis, who knows Carolyn very well, and I asked Cathy about this and she said --

MR. THOMAS: Objection. Hearsay. And I think this witness is going to be here later.

THE COURT: Is this offered for something other than its truth?

MR. COFER: It's offered solely to show that the work was done.

THE COURT: He's told the witness he's spoke with Ms. Ellis. He can say what his

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statements are, but her statements are hearsay.
MR. COFER: That is fine.
BY MR. COFER:
Q. Let me just ask you this.
Have you seen this original lab notebook that records this work?
A. I have.
Q. And is it in existence today?
A. Yes.
Q. And did we bring a copy of it to support it?
A. Yes.
Q. Okay.
Behind you, Dr. Carchman, at the break in, order to save time, I wrote down some words. Let's pull these out. Why don't you step on behind. We'll use this. Can everybody see this?
On that chart, I wrote cancer, mutagenic tumorigenic, carcinogenic, biological activity. Do all of those words mean the same thing?
A. No.
Q. Is biological activity an umbrella for mutagenic, tumorigenic, carcinogenic?
A. And other biological activities, as well, yes.

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THE COURT: Mr. Cofer, I'm going to have the chart moved so that the court reporter can see.

MR. COFER: Thank you.

Sorry.

BY MR. COFER:

Q. To your knowledge, Dr. Carchman, were Philip Morris employees ever instructed not to use the words cancer and addiction?

A. No, they weren't.

Q. Have you used the word cancer in memoranda you wrote at Philip Morris?

A. All of the time.

Q. Have you heard the term cancer used at Philip Morris by Philip Morris employees?

A. Yes.

Q. Have you ever heard anyone tell the scientists at Philip Morris not to use the word cancer?

A. No.

Q. Biological activity. Is that a term with a specific meaning in the outside scientific literature?

A. Yes.

Q. Does the Surgeon General of the United

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States use the phrase biological activity in his reports on smoking and health?

A. He uses it. Ernst Wynder uses it in the Bambury Report in 1980, in his chapter, he uses it. When I was up in Canada, working for Health Canada, the Canadian Department of Health used it. The public health scientists there use that term.

Q. Okay. Let's move this chart back out of the way. Thank you. Okay.

Whole product testing. There's been testimony in this case about whole product testing. And let me ask you this. Does Philip Morris test commercial cigarettes?

A. We test commercial cigarettes on a regular basis in our manufacturing facilities and in our R&D centers, looking at some very specific parameters.

Q. Now, does Philip Morris do biological testing on commercial cigarettes?

A. No.

Q. Why not?

A. The tests that we carry out, like the tests on the Accord, which I said is pretty much the same thing we do on any cigarette design changes, is a scientific examination of what the

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impact of those changes would be on biological activity. It's simply and solely a systematic and rigorous scientific examination.

Q. Now, the tests -- there's been testimony that Philip Morris tests what's called reference cigarettes; is that right?

A. We use reference cigarettes all of the time in our biological -- in our biological assays. The groundwork for that was actually laid 25 plus years ago as part of the tobacco working group at the National Cancer Institute. That was the standard that they established in terms of looking at all of the things that were on the chart we talked about and all of the things that we have talked about with Accord and some of the things that we'll talk about in terms of other cigarette design changes.

Q. Have you prepared a chart that illustrates the difference between a reference cigarette and a commercial cigarette?

A. Yes.

Q. And while I'm getting it, tell the jury how does a Marlboro cigarette compare with a reference cigarette?

A. There are reference cigarettes. The

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University of Kentucky has developed reference cigarettes over the years, and these reference cigarettes have different names and numbers.

So, if we talk about the 1R4F, F means filter. 1R4 means that this product will deliver 11 milligrams of tar and about 1 milligram of nicotine.

Q. Okay.

A. So, there is a 1R4F. There's a 1R5F. There are all of these different numbers that relate to different reference cigarettes that have different tar deliveries. So if you wanted to look at the commercial marketplace, you can use this these reference cigarettes to get at either chemical or biological questions.

Q. Why don't you grab your pointer and come over to the chart, if you would, and we'll just swap places. And tell the jury, Dr. Carchman, what this chart depicts?

A. These two pie charts are meant to allow a comparison of a reference cigarette with a commercial cigarette. So, what you have here in this pie chart, this larger piece of the pie, is the tobacco in the reference cigarette, and it's almost -- excuse me -- 92 percent blended tobacco.

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It is the same kinds of blends that you see in a commercial product. It has got 93 and a half percent blended tobaccos.

Q. Let me stop you there.

There was testimony yesterday about blended tobacco being things like bright tobacco lamina, burley tobacco lamina, oriental tobacco lamina, RL, BL, expanded tobacco. Are those the blends that you are talking about on this chart?

A. Those are the kinds of things that you are going to see in both. Depending upon the reference cigarette, if instead of being a 1R4F, this is a 1R5F, it would be blended i a way that would match the commercial market for a 5 milligram product. So this is, let's say, an 11 milligram product, an 11 milligram reference, reference cigarette.

And this is, in the United States today, about where the sales weighted tar average is.

So, if you want to look at something in relationship to where the market is today, this is not an unreasonable way to approach it.

Q. Okay. Now, let me ask you this. The commercial cigarette that you just described, 93 and a half percent tobacco; right?

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A. Yes.
Q. 3.2 percent humectants?
A. Yes.
Q. And you also had 2.8 percent humectants in the reference cigarette?
A. That's correct.
Q. Three percent sugars in the commercial cigarette; right?
A. Yes.
Q. 5.3 percent sugars in the reference cigarette; right?
A. Yes.
Q. And then what do the flavors that are added, what percentage does that contribute to the commercial cigarette?
A. It's usually less than. It is clearly no more than 0.33 percent, and that is represented by this little yellow -- at least sometimes it looks yellow to me -- this little yellow slice through the pie here.
Q. Are humectants and sugars what is known as casings?
A. No. No.
Q. And what are humectants?
A. Well, humectants are things like

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glycerine or propyl glycol or water thank you add in the manufacturing process to moisturize tobacco. When you start with tobacco, you have a leaf, for example, and in the manufacturing process, unless you add humectants, you are going to end up with tobacco dust. You are not going to end up with a cut filler that was is the tobacco.

So, the main and important reason for adding humectants is keeping the tobacco soft, pliable and moist. So, by the time you get done you still have something that looks like tobacco.

The sugars indeed can be considered it's a flavor, a flavor-type component. And it's added in a similar amount in both of these. And there are different kinds of sugars that are used, but they are all under the heading of sugars.

Q. Well, for test purposes, let me ask you this. What is it in a cigarette that is biologically active? Is it the tobacco or is it the flavors?

A. As I said earlier, the overwhelming factor that contributes to biological activity is the tobacco.

Q. So, why is it then that you would want to test the additives or the ingredients separately?

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A. Well, it would be almost impossible, within the context of a cigarette, to know whether anything you added at this level is going to change the biological activity. You end up asking that question, but you actually look at these materials separately outside the context of the cigarette as well. I think we'll talk about some of that later.

Q. And I do want to talk about that. But for right now, the point I want to make, does Philip Morris test the additives?

A. Yes. We test them singularly and in conjunction.

Q. Okay. I think we had another chart. Are we through with this one?

A. Yes.

Q. Give me one more second so I don't have to keep going by you. Okay.

Describe, if you would, Dr. Carchman, what this chart shows to the jury?

A. I think you have the wrong --

Q. Do I have the wrong chart?

A. The wrong chart.

Q. Well, then don't describe that chart. Let me get the right chart. I don't have the right chart.

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A. I can draw it.
Q. Okay. You want to draw it?
A. Yeah.
MR. THOMAS: Is it over here?
BY MR. COFER:
Q. Okay.
A. This data that I'm going to try to represent on here comes from two sources. The majority of it comes from a publication in 1995 in the Journal Mutation Research, a good solid peer review scientific journal. The authors -- I think, Stevens is the first author and A. D. Little is the last. They are R.J. Reynolds scientists. So the work I'm going to talk about in part comes from a peer review publication that appeared in literature in '95.

And what they did was they went into the commercial market, went to the stores, and they bought about 70 commercial brands, and those brands basically captured almost three-quarters of the commercial cigarette market in the United States. And the tar deliveries ran from around 3 milligrams to 23 milligrams. I could be off by a milligram. But I think is the range it captures.

They looked at Ames activity, this

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mutagenic activity, in two of the Ames tester strains. And they presented the data in tabular form.

And what we have done is I have converted the tables into a graph. What you see is, if you look at this on a per-cigarette basis, so you're going from a three-milligrams cigarette to a 23-milligram cigarette, and if you look at the Ames activity in those cigarettes, what you see is that there's almost a straight line, almost a straight line relationship between amount of tar delivered per cigarette in the Ames activity, which would go from zero to some bigger number. So the more tar the cigarette has, the higher the activity.

Now, I put this 11 in here because this is also what the tar delivery of a reference cigarette is. These cigarettes here are primarily flavored cigarettes. It's a commercial product, blended tobacco. It looks just like that pie chart, but it also has the 0.3 percent flavors.

Q. Okay. Let me stop you.

So, these show commercial cigarettes bought off of the shelf in the store?

A. That's right.

Q. Okay. And this is the reference

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cigarettes' tar delivery?
A. Tar delivery. And if you take those reference cigarettes and then actually do this assay, they come right out in here, in the same place that the commercial products come. That is one.
Q. Okay. Let me stop you there. So if you bought commercial cigarettes, just went to a store and you got the ones that delivered 11 milligrams of tar, and you plotted them out in terms of activity, they would show up in this range; right?
A. They would show up right in the line that you would predict they would come up, based on all of that.
Q. And then if you took a reference cigarette and compared it with the commercial cigarettes?
A. This reference cigarette shows up here. So, what we did was we took the 1R5F, which is --
Q. 1R5F means what?
A. F means filter. And 1 -- I want to say this is about a 5 milligram tar product.
Q. So, the R stands for reference; F stands for filter; the 5 stands for the tar? Approximately? Or something like that?

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A. I don't think so.
Q. Okay.
A. But it sounds nice.
Q. But it's the type of reference cigarette?
A. Right. And if you do that here, and let's just say that is the 5, it is going to come in right where you would predict it to come in.
Q. Now, let me stop you there.
So what you are saying then is, if you buy a reference cigarette, and you figure out what the tar is of the reference cigarette, and you test it on these assays that you talked about, you compare it to where just a commercial cigarette with the same tar delivery comes out, they come out the same?
A. Yeah. It is the tobacco. And actually, we also took the Accord product and tested it. And it comes out just a hair above that, above that base line.
Q. Write in blue, if you would, Accord there.
A. Now, if you were to take the Next product --
Q. And that is the denicotinized cigarette that Philip Morris brought to market that is off

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the market; right?
A. That's correct.
Q. Okay.
A. And there were several. I mean there's Next, Benson Hedges and Merit. And I don't know which one you want to pick, but let's say this is hypothetical because I don't know if there was such a product, but this is just for illustration. If there was an 11 milligram Next product, I don't know what. Does it say on there?
Q. Well, it doesn't say?
A. It would fall in here. Again, it is the tobacco that is really driving what people are looking at in this kind of an assay.
Q. And so that point is clear, Next -- I have the cap -- Next has less nicotine; right?
A. Yes.
Q. Does Next have less tar?
A. No.
Q. Is it the tar or the nicotine that drives the biological activity?
A. It is tar. I mean, we have a product, Merit, Ultima, that has the same amount of nicotine that that product has. And so three -- let's see. A 1 milligram product, and it falls right where

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this line would have been if they would have gone further. So, the activity follows tar.

Q. Okay. Let's move this out of the way again. Thank you.

Let's see what I have, to put you where I want you. Okay. Why don't you go stand over there, and we'll use another chart. And we are getting close here, Doctor.

Ingredients. You told the jury earlier that one of your primary duties at Philip Morris had been the evaluation of ingredients for cigarettes; right?

A. Yes.

Q. Well, first tell the jury what is an ingredient?

A. One way to look at it, one way we look at it, one way the U.S. government looks at it is ingredients are things that we add to the tobacco to make the cigarette. So, this would be non-tobacco things.

Q. Is an ingredient the same thing as an additive?

A. Yes.

Q. Okay. Now, how do ingredients and additives differ from smoke constituents?

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A. Ingredients and additives is what we would put on the tobacco. The constituents is what comes out when you smoke the cigarette from the filter, the filter end.

Q. So, the constituent is not the same thing as an additive or ingredient?

A. That's correct.

Q. How long has Philip Morris used ingredients or additives in the cigarettes it sells to the public?

A. In the United States, for 100 years.

Q. How long have people been using ingredients and additives in tobacco?

A. Longer than that.

Q. Is it a secret that Philip Morris uses ingredients and additives in the product?

A. I would say no. If you buy mentholated cigarettes, it says menthol. And menthol is one of the additives.

Q. Well, how about this. Does the tobacco industry as a whole provide a list of all of the ingredients used in every brand of cigarette sold in the Department of Health and Human Services?

A. Ever year since 1986.

Q. So, since 1986 every year HHS gets a list

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of every ingredient?
A. Yes.
Q. Now, those aren't listed by brand, are they?
A. No.
Q. How come?
A. That is what legislation -- basically, that was the box we were allowed to live in.
Q. Well, let me ask you this. Are the specific ingredients that are used in Marlboro a trade secret?
A. They are very sensitive proprietary information.
Q. Is that something you would prefer your competitors not have knowledge of?
A. Yes.
Q. But if it's used in Marlboro is it on that list that HHS gets?
A. Yes.
Q. Was that list released to the public? Was the '94 list released to the public in 1995? Or do I have my dates wrong?
A. Just slightly off. The 1993 list was publicly released in 1994.
Q. I think you have touched on this briefly,

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but I think the flavor issue is obvious, but why are ingredients used in the manufacture of cigarettes?

A. So, if we try to look at this, humectants that we talked about and why we use them, and actually water is the largest single ingredient that we use overall.

When you make a cigarette, you go through a whole series of adding water and drying it, many, many times in the process. So, we use a lot of water.

We also use a lot of propyl glycol and glycerine for the same effect.

We also use something called processing aids. Actually, we have talked about those, as well. So, for the use of carbon dioxide to expand the tobacco. That is that progressing aid. So you introduce carbon dioxide, expand the tobacco capture back the carbon dioxide. So, you are not going to find any or even you're going to find infinitesimal small amounts of processing aids in the finished product.

And the other thing that you would add, flavors and aroma materials, like licorice and chocolate and vanilla and cherry.

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Q. Now, we had the pie chart up earlier, and you went through it I think in some detail and discussed that to the jury. So, let me just ask you an opinion question.

Based on your work at Philip Morris evaluating ingredients, based on your experience as a pharmacologist, as a toxicologist, do you have an opinion, to a reasonable degree of scientific probability, whether the ingredients used in the amounts that are present in cigarettes pose a health hazard to smokers?

A. I have an opinion.

Q. Tell the jury what that opinion is?

A. I don't believe that the ingredients we use, the way we use them, pose a hazard to people who smoke cigarettes.

Q. Now, does Philip Morris do anything to ensure that the ingredients it uses are safe?

A. Yes.

Q. Have you prepared a chart which describes that?

A. Yes.

Q. Let me ask you, before I get it out, is this the chart?

A. Yes.

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Q. Okay. Let me slide by, please. Okay.
Six Levels of Evaluation. If you would, tell the jury what that chart demonstrates?
A. This is the process that we use to evaluate ingredients actually for any kind of cigarette design, but we are talking about it in ingredients. And it's internally a six-step process, but we have two additional external features that I'll talk about after this.
Q. Okay. Why don't you go through it and just tell the jury.
A. Okay. The first phase is getting information. And so what we tap into is every single data base that exists anywhere in the world that talks about the ingredients that we want to use or anything that looks like, smells like or tastes like the ingredient that we want to use. So, there are government reports, scientific reports, internal information, things that other regulatory bodies have done, because ingredients are regulated by other countries with respect to tobacco. And there are things that you are allowed to use and even tell you how much you can use. And then there are things that they say don't use. They are not permitted. They are prohibited. So

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you have to gather all of this kind of information.
And so if somebody says gee, I want to use phramastan as an ingredient, and all of a sudden you find out that some Yugoslav legislation says phramastan is forbidden. Well, that's the end of phramastan. Or if we find a study that says phramastan is mutagenic, that is the end of it.

Q. Well, let me stop you. What if you looked at the Yugoslav legislation, and you said it made no sense. You still wouldn't use it?

A. Still wouldn't use it.

Q. Okay.

A. And so for instance as part of this we would look to see what the U.S. Food and Drug Administration has done with some of these ingredients, and they have a process for evaluating ingredients, not for use in tobacco, but for use by people in foods or packaging. So, that would be part of this very early phase.

Q. And let me stop you here.
The Food and Drug, when they look at food, is that called GRAS?

A. Yes. GRAS.

Q. And tell the jury what that is?

A. That stands for Generally Recognized As

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Safe for the intended use.

Q. Okay. Go on.

A. And so, if in the United States there's an organization called FEMA, F-E-M-A, Fragrance & Extract Manufacturer's Association. So, when you put on your cologne or your perfume or use some sort of soap or drink a beverage that contains -- like Uso, that has some licorice in it, all of those things are evaluated. And FEMA has the GRASing process, and the FDA embraces that GRASing process.

And what it involves is you get a group of scientists together who are experts in various aspects. You have nutritionists, toxicologists, pharmacologists, pathologists, just everybody you think you need, and they sit and they review the information, and then they make a recommendation, than recommendation might say well, the way people use the product and how much they use and how they use it, we are going to give that GRAS status. But it's GRAS for the intended use. That intended use is food, beverages, packaging.

But it's important information. If you find something in there that you don't like, that could be a reason for not using it.

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And so there were substances that have been GRASed that we wouldn't use, even though they are GRAS. So, just because something is GRAS is not a reason for us to go ahead and use it. This is just part of our very early preliminary evaluation procedure.

Q. Okay. Go on, please.

A. Chemistry. If you are lucky, you know what the thing looks like, what the molecule looks like. And there are some things about the molecule that we might not like. If it has chlorines on it, that's the end of it. We wouldn't -- we wouldn't use it. If it looks like something else that we know is a problem, we wouldn't use it. So, that is another step. And you could quickly eliminate things in either of these two steps.

MR. THOMAS: Excuse me, sir.

Your Honor, I have a question in aid of objection.

THE COURT: Go ahead.

BY MR. THOMAS:

Q. Dr. Carchman, these levels of evaluation for new ingredients, are these things that are used now or were used before you retired or were used back in the '70s and the '60s and the '50s?

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A. This process was -- there are documents that I actually reviewed when I was a consultant to the company in '85-'86 that use this, refer to this particular process. And while I was with the company I continued to develop this, evolved, evolved this. So, they used this kind of process. They used it while I was there, and they are using it now.

Q. So, in terms of, for the jury's information, you're not testifying that this was used before, I guess, 1989?

A. Yes, it was.

Q. 1985?

A. The first memo that I can recall is 1980.

MR. THOMAS: Since 1980. All right. Thank you.

THE WITNESS: You're welcome.

So, this is relatively simple stuff. It is a lot of work to go through possibly, but at the end of the day we are not going to eat this. We were not going to drink it. We're going to put it in a product that people are going to smoke. And so we carry out pyrolysis where we are going to provide energy in the form of heat, different levels, to get to different

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temperatures and see how this behaves, what it breaks down into, when it breaks down into whatever it breaks down into.

So, there is a lot of fundamental thermodynamics and physical chemistry and analytical chemistry that goes on here.

So if we see something in terms of its behavior under these different conditions it could be gone, as well.

The fourth stage is to take the material as we plan to use it, at the levels we plan to use it, and then exaggerate those levels somewhat, and put it in a reference cigarette and smoke it and then measure the smoke chemistry.

Q. When you say smoke it, smoke it through a machine and measure the chemistry?

A. Yes. Smoke it through a machine and then measure what comes out. Again, we are getting more and more complicated, if you will, as you go down in this direction.

Q. Now, these in vitro and in vivo toxicologic studies, are they similar to what you have already described?

A. As I said, those are the same kinds of things that we generally use. And so we carry out

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a variety of studies that would include these and possibly some other tests. And we can lose some things in here.

Now, let's say we get something that survives all of this, and this could take, I mean, if you get down to this level, you're talking, at a minimum, three years and a couple of million dollars.

Q. Okay.

A. You stop it up here, it's a few minutes. So, you're down here, and you are out for a couple of years.

The next question is the smoking panels in the company. Because way back here somebody in product development may have said I think this is a good idea, and then a couple of years later if they are still interested, hopefully they are, when we have done all of this, we then have to assess how many people can smoke how many of these cigarettes to see if whatever the subjective, the taste and the flavor characteristics are still acceptable, and that determination is done here.

So, these are our basically six internal steps.

We also have --

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Q. Okay. Let me stop you there.
A. Sorry.
Q. The first five go to safety. No. 6 goes to whether the flavor contributes anything; right?
A. Yes.
Q. Okay.
A. We also have an external scientific advisory board made up of outside, mostly -- no, entirely university-based scientists, toxicologists, pharmacologists, chemists, and pathologists. I think there are six. Six is a magical number, I guess, for us, as you'll see, and they sort of look over our shoulder at every step of the way to make sure that they agree with what we are doing. So, we have them sort of looking over our shoulders and agree or disagree with what we are doing.
Q. Okay.
A. In addition, there's another SAB, another scientific advisory board, and that is an industry scientific advisory board that basically --
Q. Let me stop you. That has nothing to do with Counsel for Tobacco Research scientific advisory board?
A. No. No. No. And these scientists are

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preeminent authorities in the world, in the world today, and they have been involved in the assessment of the industry's use of ingredients since the middle to late '80s. And they have actually prepared two reports, safety assessments, one in '94 and one in '98, on the ingredients. The one in '94 was published. The one in '98 focuses on this aspect of it. And so we had a couple of different eyes looking at this, a couple of different levels of scrutiny.

These outside people, the second scientific advisory board, actually came and visited over a number of years the companies in the United States that actually carry out this kind of research. And looked not just at the final reports but looked at the raw underlying data. And, in the case of Philip Morris, went to INBIFO on a number of times.

Q. Okay. If you would come down to the monitor, I want to show you something and ask you about it, please. Okay.

This is Plaintiff's Exhibit 148. We have seen this before. We showed it to Mr. Burnley yesterday. I want to ask you about this. I asked Mr. Burnley about Exhibit 1, 2 and 3. I want to

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ask you about fact 5.

This is entitled "Smokers and nonsmokers: Fact you should know." This was put out by Philip Morris. Right, Dr. Carchman?

A. Yes.

Q. Fact. None of the ingredients added in the manufacture of cigarettes is harmful as used. Cigarette ingredients have been scrutinized by the Department of Health and Human Services since 1986. In addition, an independent safety assessment was conducted by six renowned scientists. Their report concluded, quote, "the ingredients added to tobacco in the manufacture of cigarettes by the six major U.S. manufacturers are not hazardous under conditions of use."

Tell the jury, Dr. Carchman, whether that is a true statement?

A. That is a true statement. And this quote comes directly out of 1994 safety assessment by this outside scientific advisory board.

Q. Okay. Just a couple more questions on ingredients.

Does Philip Morris use acetaldehyde as an additive in cigarettes?

A. No.

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Q. No?
A. No, sir.
Q. Does Philip Morris have a position on whether it would permit the use of acetaldehyde?
A. Yes, it has a position, and that position is we won't. We had an experience where we discovered that one of our vendors that sells us the flavors actually had as part of their flavor package acetaldehyde in it. We went back to that vendor and told them to remove it, and then we measured it, and they took it out.
Q. Are you familiar with Dr. Vic DeNoble?
A. Yes.
Q. Are you familiar with Dr. DeNoble's work on acetaldehyde?
A. Yes.
Q. Have you seen Dr. DeNoble's report?
A. Yes.
Q. On his work on acetaldehyde?
A. Yes.
Q. If there had been testimony that Philip Morris uses acetaldehyde in combination with nicotine to create an additive effect in the product it sells, would that be correct?
THE COURT: Counsel, you need to rephrase

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your question so as not to have the witness comment on the credibility of other testimony.

MR. COFER: Let me rephrase that.

BY MR. COFER:

Q. Does Philip Morris use acetaldehyde in combination with nicotine to create an additive effect in the product it sells?

A. No.

Q. To your knowledge has Philip Morris ever used acetaldehyde as an additive?

A. I'm not aware of that. I can only go back until probably the early '80s, 1980s.

Q. Okay. All right. Next topic. Analog program. Are you familiar with Philip Morris' nicotine analog program?

A. Yes.

Q. Tell the jury what the goal of that program was?

A. The two main objectives were to develop a nicotine analog that had the central nervous system effects of nicotine without having an effect on the heart, on the cardiovascular system, what they would call the peripheral nervous system. That is that thing outside of the brain.

Q. How was it that you became familiar with

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that program?
A. One of my first assignments was to review the nicotine analog program that Philip Morris had under way, and I did that for Dr. Jim Charles.
Q. Did Philip Morris ever find an analog or satisfy the goals of the program, one with CSN effects and with no peripheral nervous system effects?
A. No. It had CSN effects and peripheral effects. If it didn't have CNS effects, it didn't have any effects.
Q. Tell the jury who Leo Abude, Leo Abude was?
A. Leo Abude was actually somebody that I knew, that I have known for 25 years. He recently passed away. He was at the University of Rochester in the school of medicine, and actually he was one of the first reviewers for one of my first NIH grants. And a very prominent neuropharmacologist. Probably considered to be one of the fathers for development of the nicotine receptor concept and assay.
And he was used by Philip Morris for doing some very preliminary work on these analogs that we had synthesized in the R&D.

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Q. Was he at the University of Rochester at the time he was work on the analog program?
A. Yes.
Q. How about Dr. Eagle? Tell the jury who Dr. Eagle was?
A. Dr. Jack Eagle was actually my neighbor in the department. Jack and I shared a secretary. He had one office. I had another office.
Q. In the department of Philip Morris or the medical college at Virginia?
A. At the medical college of Virginia. And Jack was a cardiovascular pharmacologist.
Q. Did Dr. Eagle work on the analog program while he was at the medical college of Virginia?
A. Yes.
Q. Did Philip Morris provide samples of the analogs it produced to Detrich Hoffman at the American Health Foundation?
A. Yes.
Q. Did Philip Morris provide samples of these analogs to anybody else outside the company?
A. They provided samples to at least one, maybe more, drug company for whether or not any of these analogs might be useful in things like Alzheimers or Parkinson's disease.

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Q. Did the documents that you reviewed, as part of your responsibilities to look at this program, did you ever find a report that said that the goals of the analog program had been met?

A. The closest it came in any of the reports that I ever looked at was some speculation of some degree of enthusiasm based upon some early and preliminary response; but, no, there was never any documentation that I saw that concluded that the goals had been met.

Q. Okay. Assuming that Philip Morris had developed an analog that would have accomplished the goals of the CNS effects on the peripheral nervous system effects, in order to use it, would Philip Morris had to have been able to first extract the nicotine from the tobacco?

A. Yes.

Q. During the time period when this program was going forward, did Philip Morris have the technology to extract nicotine from the tobacco in a way that still left the tobacco with satisfactory taste?

A. No.

Q. Okay. A couple more questions.

Can a safer cigarette be made by placing

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pyridines in a hollow tube like a straw and adding flavorants like glycerine and menthol?

A. That kind of product actually was on the market in the United States. It was called Favor, and the federal government pulled it off of the market because it said it wasn't a cigarette.

Q. Are pyridines a nicotine analog?

A. No.

Q. Did Philip Morris scientists synthesize pyridines as part of the nicotine analog program?

A. No.

Q. Do you know?

A. I said no.

Q. Okay. Okay. Last few questions. And this one is one of the big ones.

Has any of these efforts that Philip Morris has made that you told the jury about, selective reduction, general reduction, denicotinization, Accord, the program, in your view, have these efforts of tar reduction played a difference in the safety of cigarettes?

A. I can't really speak about Accord, but in terms of the last 30 some-odd years of work, I have reviewed the epidemiology literature on a world-wide basis, and from 1967 when the first

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reports came out from Bross, Bross' laboratory at Roswell Park, where he showed a reduction in risk comparing filter to non-filter. Three years later Wynder in New York, a bigger study, replicated those results. The American Cancer Society, from number one, where they looked at high to low tar, basically concluded not only was there reduction in lung cancer risk but there was also reduction in cardiovascular disease as well.

In 1986 the International Agency for Research on Cancer, part of the world health organization, in volume 38 on tobacco and tobacco smoking, a big monograph, basically concluded in total review of all of the literature from that time backwards that there was a strong association between the risk reduction and tar reduction. That was '86.

In 1988, in the United Kingdom, the Frogert committee, the Frogert, Dr. Frogert was the scientific medical leader at that point. He again reiterated what the IR group said in '86.

And then I think I said yesterday, I may have said yesterday, in 1996 in the FTC monograph No. 7, they concluded what the Surgeon General in '81 concluded, that tar reduction was associated

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with risk reduction.

And in the early '90s Peto is the first author of analysis in the U.K. They looked at overall mortality. Not just limited to lung cancer. And they found that lower tar was associated with decreased mortality. So, not just limited to lung cancer.

And then in 1998 two additional Department of Health reports, one from the U.K, one from New Zealand, again talked about how important it was to continue the tar-reduction program.

And I think I did say Richard Pito, was a famous tobacco control epidemiologist, said we need to push this into countries that don't have American blended low tar.

And there was a study published by Zhuder, Z-h-u-d-e-r, and colleages. I'm terrible at spelling. It's in the Journal of Lung Cancer. And it was a case-controlled study looking at people in the Philadelphia, Pennsylvania area. I think it was close to 1500 to 2000 people. And their conclusion, their data basically said if you smoked a high tar non-filter cigarette, your risk for lung cancer was about 11. It may have been 11.4. Something like that.

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Q. What do you mean by 11? What does that mean?
A. That the risk for lung cancer increased by a factor of 11.
Q. So, you're 11 times more likely to get lung cancer if you smoke that cigarette than if you don't smoke at all?
A. That is pretty much what it says.
Q. Okay.
A. If you look at individuals who smoke filter, lower-tar products, the risk for getting lung cancer was 54 percent lower than that. So that is 1967.

1998, the actual epi data, and they have a series of U.S. Surgeon General's reports, U.K. Health Department reports, NCI Monograph No. 7, all continuing to say that lower tar is associated with lower risk.
Q. Okay. Now, smoker compensation. We have heard that as lower tar products have been introduced, people smoke them in a different way. Doesn't smoker compensation negate any benefit that lowering tar and nicotine has accomplished?
A. That is a question that scientists and public health community people have been concerned

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about from the very -- from the very, very beginning.

In the mid-'60s both Tax and Graham and Lou Casey group, which is really Bob Scheuster hat Chicago, looked at this question.

And by compensation what you are really talking about here is if you have a 61 milligram cigarette and you make an eight milligram cigarette and you go from smoking 20 16s, to smoking 48s, there's no benefit. So that is compensation.

If you take a bigger puff and inhale more, it is the tar. Then you are going to negotiate that response. So, that is the compensation question.

You take more puffs per cigarette, and there are a variety of studies over this whole period of time that have shown various degrees of compensation, and you look at a day, you look at a month, so you get some answers.

The question is what happens over 10, 20, 30, 40 years of smoking? How does that compensation play in? Nobody has any specific answers to that.

But in 1996, in the FTC monograph No.7 , Jonathan Samet, Dr. Samet, from Hopkins, the

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chairman of the Public Health Department at Hopkins.

Q. Is that John's Hopkins medical school?

A. Yes. I think it was chapter 6. I think it was chapter 6, the second paragraph of that report basically says when you do an epi study, compensation -- and I'm paraphrasing here -- compensation is accounted for when you do the epi study.

And actually that is sort of nice to hear that because in 1980 Ernst Wynder said exactly the same -- said exactly the same thing. So, compensation is something you need to pay attention to.

Okay. Nobody really knows over the natural course of how people smoke, how they do it, to what extent compensation takes place. How long it lasts. But when you do those epi studies --

Q. Those are epidemiological studies?

A. I'm sorry. Yes.

When you dose do these epidemiological studies, it's a consequence of doing those studies that you account for compensation.

Q. Is that another way of saying that when you look at the epidemiological studies that people

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that smoked these low-tar cigarettes, if they compensated, they compensated but the results of the studies speak for themselves?

A. When I looked over these 30 years and I compared what the reported risk reductions were over those 30 years, 30 years ago the risk reduction was 20 to 40 percent, and that was comparing the high tar to low tar 30 years ago.

Now, a low tar 30 years ago was a 16 milligram product. Okay. Today that is at the top end. So, if you looking today, we are 16 milligram would be at the very top, an 11 would be where the sales weight averages were below.

I go back to the Zhuder, et al, study where he saw a 54 percent reduction. Again comparing at that time the high tar to low tar at that particular time, and you can go back anywhere between 1998 and 1967 and actually plug the numbers in and the internal comparison and you see the same kinds of consistent reduction risk.

Q. Okay. Dr. Carchman, one question. Then I'm going to ask you two opinions.

Was the Accord cigarette developed in response to lawsuits, to recent litigation?

A. No.

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Q. Is that why we have Accord?
A. No.
Q. Two opinion questions.
Do you have an opinion, to a reasonable degree of scientific probability, whether there is anything else that Philip Morris could have done to make a safer cigarette, beyond what they have done with Accord as of today?
A. I'm not aware of that.
Q. Do you have an opinion, to a reasonable degree of scientific probability, whether it was scientifically feasible to bring Accord to the market any sooner than Philip Morris has?
A. As I tried to explain with the boards, some of the things that now make up the Accord did not exist in nature or in anybody's laboratory. Some of them may have existed in somebody's mind, but there was nothing that one had in one's hand to do anything with.
Q. Dr. Carchman, in response to one of the first questions I asked you, you told the jury about your current relationship with Philip Morris.
A. Yes.
Q. Do you have a relationship now with the medical college of Virginia?

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A. Actually, I never gave up my relationship.

Q. Are you still teaching?

A. Well, if I can get through this, I would like to do that. I'm still on a government training grant. I had students up until recently working on both master's and doctoral theses, and I would like to get back into that, both with the chairman of the department of pharmacology and toxicology would like me to teach some courses next year, and I have an affiliate appointment in that department, and the chair George Cunoshe, and chairman of biostatistics Dr. Hans Carter would like me to come back and start recollaborating, writing with him in terms of research and training activities.

MR. COFER: Dr. Carchman, thank you very much.

THE COURT: Sir, would you take the witness chair, please?

THE WITNESS: Thank you.

THE COURT: Mr. Thomas.

MR. THOMAS: Thank you, Your Honor.

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CROSS-EXAMINATION

BY MR. THOMAS:

Q. Well, Dr. Carchman, we got introduced yesterday. You know that I represent the Estate of Jesse Williams; right?

A. Yes, sir.

Q. So, I have a lot of questions to ask you, and I'm going to try to get done within an hour to an hour and a half.

I guess the first one is let's just see if I heard what I thought I heard.

As of March 16, 1999 is Philip Morris admitting to the American public that smoking Marlboros causes cancer, lung cancer?

A. Putting aside the date, the March 16, 1999, what I said was if you equate cause with increased risk, then indeed smoking does cause -- does cause lung cancer.

What I also said, as consequence of, I think another question Mr. Cofer asked me, besides providing some explanation, additional explanation to that, I believe I also said that Philip Morris has said for awhile -- I can't tell you exactly when that date was, but it was clearly before March

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16th, 1999, that smoking was a risk factor for lung cancer.

And what I'm saying is you equate risk factor with causation, as many people do, and as the public health community does, then indeed that is where you end up.

That is not where we -- that is not where we end up, simply because, I went on to explain further, that you need to have a scientific basis to figure out what the constituents are and what the mechanisms.

But if you take it at a very superficial level, then the answer is yes.

Q. Well, I guess maybe that was a long answer. But for purposes of "we," and are you talk about "we" meaning Philip Morris?

A. Yes.

Q. Without qualifying by risk factors, are you willing to admit, Philip Morris, to the American people, that its cigarettes cause lung cancer?

A. I don't know how to answer your question without qualifying it with risk factors, because that is how the term is derived, both from the '64 Surgeon General's report onward.

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Q. Well, let's ask you this.
Do you remember the controversy, the term "controversy" about the causation of lung cancer?
A. I have heard the word "controversy" used in this context.
Q. Well, is the "controversy" over?
A. If by that you mean do we understand what constituents in smoke are causing disease and how they are doing it, as I said, nobody knows the answer to that.
If you are saying have we been saying that smoking is a risk factor for lung cancer, many people equate increased risk with cause, then that part of it is evident.
Q. Has Philip Morris issued some public statements about how, well, for those folks who heard about the controversy, people who may have read articles like "Smoke Without Fear," things have changed?
A. No. I don't know what you are referring to when you say, "Smoke Without Fear." I do know that a letter was provided to Senator Hatch in '97 that provided.
Q. Before you go into that, I'm afraid that I can't ask you questions about what Philip Morris

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did in relation to Congress or lobbying.
What I'm talking about is to the American people you issued, you, Philip Morris, any statements regarding controversies over or a position on the controversy has changed?
A. Well, I can only deal with scientific facts and scientific information I'm aware of.
I can tell you that the company has said for some number of years, I can't tell you exactly when, that smoking is a risk factor for lung cancer and other diseases, not limiting itself to that.
To the extent that it has said that and to the extent that I have tried to explain how one equates or can equate causation with increased risk, it seems to me, at least to me, maybe I'm not making myself clear enough, that if one leaves the level of interpretation at that level, then cause is operative.
Q. Is that something that Philip Morris customers might want to know about?
A. You mean in addition to the government mandated warning labels that smoking causes lung cancer and a variety of other diseases?
Q. Well, what happened to the controversy?
A. Well, as I say, when you asked me about

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the word, I said I was aware of the word. But you raise some name of what sounds like an article, and I said I really didn't know what you were specifically talk about.

So, if you can be more specific, I might be able to answer your questions better.

Q. Well, let's maybe move to application.

Would you or Philip Morris be willing to admit that it's probable that many people died last year from smoking Marlboro cigarettes?

A. I was asked a question, maybe, if not identical, but very similar on a number of occasions where I was providing testimony and my answer was it's possible.

Q. Well, that's not my question. My question was is it probable that Marlboros killed a lot of people before they would have otherwise died last year?

A. And I thought I did answer your question by saying it was possible.

Q. It's possible. Well, is it -- possible isn't probable, is it?

A. No, it's not.

Q. Did Philip Morris products probably cause a lot of people to get cancer in the United States

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last year?
A. I can't answer that question because I don't really know. All I can say is it's possible, and if you want to know why I think it's possible, I can go into that.
Q. You said that, within the research and development, that it was useful during your time there, from '89 on, to kind of have a working hypothesis, in order to develop a safer product, that smoking does cause cancer; right?
A. That preceded 1989, but I am absolutely familiar with it during the time I was there, yes.
Q. But as far as being willing to admit that smoking cigarettes probably causes cancer for a lot of people in this country, you are not willing to say that; is that right?
A. That's correct. And again, I can provide you with my reasoning for why I have taken that position.
Q. You don't disagree with the fact that there are a number of I guess the word is constituents in cigarette smoke that have been identified as carcinogens, things that cause cancer?
A. In the context of cigarette smoke, there

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are approximately four dozen materials that have been identified as carcinogenic. The vast majority of it have been identified as animal carcinogens.

There is a smaller group, and I don't mean to trivialize it by saying smaller, it's just fewer in number, that have been classified as known human carcinogens.

The basis for that classification is not derived from smoking cigarettes. It's derived from occupational exposures in which the levels of exposure are many, many times higher than what you would get in smoking a cigarette.

But there are a number of known human carcinogens in tobacco smoke, yes.

Q. You are not quibbling with the fact that if, as the public health community recognizes, smoking does indeed cause cancer, it's those carcinogens which are the operative factors for making all of those people get cancer; right?

A. I would argue with the word quibble. I hardly think that is a fair, accurate way of describing, at least how I'm thinking, thinking about this.

I would say an underlying assumption is you have these carcinogens in smoke. And people

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smoke cigarettes, and they inhale these carcinogens. The question then becomes, because as Ernst Wynder pointed out really early on in his analysis of cigarette smoke in relationship to lung cancer, that it was the tar, and it was the amount of tar, and he talked about dose response.

And in my scientific world, dose and it's almost a 500-year-old premise that dose is everything. And so the fact that you have a substance that you describe as a carcinogen doesn't mean that by its nature or its toxin, that by its nature it's a carcinogen or toxin.

And by that I very simply mean that it depends on how much is there, root of exposure, and the animal or the person and the organ or organs.

So, for example, benzine is a smoke constituent. It was on one of the overheads. Benzine is a known human carcinogen. It's in tobacco smoke. Benzine is a known human Leukemogen. It produces Leukemia in people, according to the epidemiological data. There is no relationship in the epidemiological literature that would support that relationship.

Now, having used benzine as one example, arsenic, chromium, cadmium, and some others that

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have been identified as known human carcinogens, based on occupational exposure, are associated with lung cancer.

But the levels of association, okay, the levels that you have do not reach the kinds of levels you see in smoke.

And within the last two years the National Institute of Occupational Safety and Health, Dr. Kyle Steinland, published an analysis of the occupational risks associated with these constituents that are also found in smoke.

The highest relative risk that I remember was something less than three, and that would be for very, very high levels of exposure over many, over many decades.

So, when I look at that, I would agree with you, to the extent that there are some things in smoke that have been shown to be harmful to animals and apparently harmful to humans, under certain conditions.

My issue is that under the conditions in which people smoke a cigarette and are exposed to these constituents, which of these constituents are responsible for whatever disease and how?

And I don't know anybody that knows the

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answer to that.
Q. I guess the point that you are making, and tell me if I'm wrong or not, is that science hasn't gotten to the point where we can point at a particular thing in a cigarette over a person's life and say we can send a scope down into that person's lung when they get lung cancer and say it was this thing or it was that thing that caused this cancer? Human scientific development just isn't that far yet, is it?
A. They are getting closer.
Q. But the public health community has been convinced for a number of years that cigarettes do cause cancer, and the figures are somewhat variable. But the number of premature deaths in the United States, not just from cancer, but from other causes, as well from cigarettes, is a staggering number, isn't it, 400 to 500 thousand dollars -- 400 to 500 thousand people, depending upon which agency is putting forth the statistics?
A. Those are the numbers that have been reported in the United States. And when we talk about increased risk of smoking to lung cancer we really need to limit our discussion to the United States or to Europe, because once you get outside

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those two areas the association changes dramatically.

So, in Japan and china, 60 to 95 percent of the women who get lung cancer don't smoke. There are other things that are other factors.

In the United States there is an important observation relating to something like income or education to lung cancer. The more money you make, the higher the education, the lower the risk.

There's a relationship with diet. If you eat high-fat foods, your risk can go up to five or six. If you eat fresh vegetables and certain fruits, you can reduce your risk by half.

So, if you don't eat fresh fruits and vegetables and you eat high fats, your risk goes up even higher.

Occupational exposures, depending on the occupation, have been reported to be anywhere from 1 to 40 percent of the lung cancers.

So, you know, when I sit back and I look at all of these things, smoking, in my mind, in the United States, represents the largest risk factor for lung cancer.

I don't -- I think that is what the data

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says, and it's said it for a very long period of time.

But like the Surgeon General said in 1964, and what WHO says, World Health Organization, says today, that statistics and epidemiology don't provide cause. But from a public health perspective they feel, and they have articulated this over the years, that they don't have to cross every t and dot every i, and I agree with them. That is from a public health perspective. What they are saying is important for the public to hear and understand.

Q. Yet, when I asked you about that number, it appears that you can't let the question go without bringing into the answer people over in China who do and don't get cancer, other causes that may possibly relate to cancer. You can't really allow the figure 400 to 500 thousand go without additional qualification, isn't that correct?

MR. COFER: I'll object to that question as argumentative.

THE COURT: It is argumentative.

Rephrase your question.

BY MR. THOMAS:

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Q. Well, it's true, is it not, that the public health community has accepted for a long, long time that 400 to 500 thousand premature deaths in the United States are caused by smoking?

A. Those are the numbers that are derived out of the CDC, Centers for Disease Control, basically driven by the American Cancer Society data. Those are the numbers that they put forth.

Q. Isn't that an horrific number of premature deaths of people in our country?

A. No. I think you're making a connection for me that I haven't -- I haven't made. I have said that those are the numbers that the government has put out. And what that means to me is in the United States, where about 2.1 million people die every year, 25 percent of the people in the United States are smokers.

Okay. Now, when it comes to lung cancer, there is an over representation smokers that get lung cancer in the United States. I think we argue through that. And I think that that is real.

When it comes to other diseases, there are other diseases in which smokers are over represented.

Now, from a public health perspective,

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they don't want to quibble, to use one of your words, about who is it? That they want to capture this in a large number.

From my perspective, from a scientific perspective, people who smoke, some of those people get lung cancer. People who don't smoke, some of those people get lung cancer. So, smoking is neither necessary nor sufficient to get the disease. But people who smoke have a higher incidence of that disease.

How do you determine, of the 150,000 people in the United States, approximately, that get lung cancer and die every year, where the majority of those people are smokers, how do you determine which one of those people got the disease as a result of lung cancer?

And those numbers are not informative, the 434,000-435,000 are not informative. It requires a rigorous and systematic investigation, as I believe is being attempted here in this courtroom with regards to this particular case. You can't generalize.

And I think from a public health perspective they are generalizing.

What I'm saying is if you want to find

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out about a chronic disease that takes decades to unfold, that has many inputs, age, gender, education, diet, occupation, genetics, family, family history, all of those things enter into it.

If you want to conclude that an individual's death was caused by smoking, then you can approach it scientifically.

But to ask me of the 150,000 people who get lung cancer and die every year, were those 150,000 individuals disease caused by smoking? As a scientist, I can't answer that question.

Q. Can you tell, and this is a Marlboro 100, not a light, can you tell me what dosage of smoke in these cigarettes, that is made by your former employer, is going to keep me from getting lung cancer?

A. No.

Q. If I follow the Philip Morris requirements for getting one of these, I'm over 18, I buy it, I get a match, I light up, I don't misuse it in any way, I do what you want me to do, which is I light it up and I smoke it, can you tell me what kind of a dose I can take to not get sick from it?

A. I can't. But there is information out

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there in epidemiological literature that will give you some indication of what kind of risk is associated with how you use that product.

Now, that is unfortunately a generalization of how you use it. And your makeup and composition and genetics will also influence what might or might not happen as a result of using that product. But however you use it, okay, there is a risk, an increased risk associated with the use of that product.

Q. We are getting close to the lunch hour. So, I don't want to go too far into it with my next topic. But are some Marlboro smokers addicted to nicotine?

A. Addicted to nicotine from?

Q. Are some Marlboro smokers addicted to nicotine?

A. From the cigarette?

Q. Yeah.

A. I don't why you are -- when I said from the cigarette, you seem -- the answer is I don't know.

Q. You don't know if some Marlboro smokers are addicted to the nicotine in the cigarettes that they smoke?

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A. All I know is that some people who smoke cigarettes have a hard time quitting. Whether it's related to the nicotine or some other feature of the cigarette, I don't know.
Q. Now you're a toxicologist, aren't you?
A. Yes, sir.
Q. I can already see you're a smart guy. You're a smart guy, aren't you?
A. I try to be thoughtful, if that is what you mean.
Q. You were a professor before you went to Philip Morris, and you are going to return to the academic world, aren't you?
A. Yes, sir.
Q. Well, for some people, for some individuals, is smoking cigarettes and the nicotine that they get from the cigarettes, does that make them addicted to the nicotine? I don't mean everybody, but for some people?
A. You mean addicted to smoking cigarettes?
Q. No. I mean addicted to nicotine?
A. I don't know the answer about being addicted to nicotine.
Q. Are you aware of the position that the public health community has taken in that regard?

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A. Since 1988, yes.
Q. The jury already knows, I think, from Dr. Benowitz' testimony, about the history of that and what it means, but just before we break for lunch I want to make sure.
Would it be fair to say that Philip Morris does not recognize that smoking its products for some people makes them addicted to the nicotine in the product?
A. My awareness of Philip Morris' position on this is the following. For some people who smoke cigarettes, they cannot or have a very hard time stopping smoking. That is, I believe, the company's position, and that is my position.
Q. Did the company find out what your position was before you were invited to join the company on this matter back in 1988 and 1989?
A. No.
Q. But I guess they knew it since you were friends with the fellow who hired you and had a number of discussions with him before they brought you on board, isn't that right?
A. No.
MR. THOMAS: I think that might be a good time to break.

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THE COURT: All right.

Jurors, we'll take up at 1:30. Notes on the chair. Please don't discuss the case. Have a good break. Watch your step.

* * *

(Whereupon, after the jury exited the courtroom, the following proceedings continued, as follows:)

* * *

THE COURT: Let me remind you that I'm required to interrupt the form of a question which can be construed to cause the witness to comment directly on credibility of another testifying witness.

And your last -- well, the last third or fourth question, Mr. Thomas, was close.

And I'm just going to ask that the questioners not phrase their question with reference to identifying another testifying witness, Dr. Benowitz or anybody else.

I'm not supposed to wait for an objection. The Supreme Court has told me to interrupt you. You know what the rule is. And I know why the question is then. I know you're trying to actually be helpful to point up certain pieces of testimony and then have the witness

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respond to the issue. But you just have to phrase the question in the form of the issue and not tie it to another witness or I'm going to have to interrupt you, and I don't want to do that.

Anything for the record?

Okay. 1:30, folks.

* * *

(Whereupon, the a.m. proceedings adjourned.)

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) SS.
County of Multnomah)

I, Jennifer Wiles, hereby certify that I am an Official Court Reporter to the Circuit Court of the State of Oregon for Multnomah County; that I reported in Stenotype the foregoing proceedings and subsequently transcribed my said shorthand notes into the typewritten transcript, pages 1 through 146, both inclusive; that the said transcript constitutes a full, true and accurate record of the proceedings, as requested, to the best of my knowledge, ability and belief.

Dated this 15th day of July, 1999 at Portland, Oregon.

_____
Jennifer Wiles
Official Court Reporter

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